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ABSTINENCE VERSUS CONTROLLED DRINKING:
A CRITICAL REVIEW

BY

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RESEARCH REPORT

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ABSTRACT

Abstinence used to be the only recommended goal for persons affected with alcohol misuse. In recent years there has been a trend to suggest controlled drinking for some alcohol abusers. The comparison of abstinence versus controlled drinking indicates that controlled drinking goals have proved to be successful in a limited attempt with problem drinkers having middle income, average intelligence, stable job and adequate social support system. Severely dependent alcoholics (gamma type) have been trained in some instances to control their drinking in a laboratory environment, but their control erodes over time. The controlled drinking controversy has partly to do with different theoretical perspectives on alcoholism, but part of it has to do with the issue of territoriality. What is needed at this point is an effective and thorough evaluation of a variety of alcohol-treatment programs with a variety of problem drinkers and alcoholics. In this endeavor a research design is proposed as an extension and improvement over the existing research methods on the comparative suitability of abstinence versus controlled drinking.

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INTRODUCTION

Alcohol ($\text{CH}_3\text{CH}_2\text{OH}$), a drug, is a central nervous system depressant. It is undoubtedly the most widely used and abused drug in America. In 1981, the equivalent of 2.77 gallons of absolute (pure) alcohol was sold per person over the age of 14. Translated into alcohol beverages, this is about 591 12-ounce cans of beer or 115 bottles (fifths) of table wine or 35 (fifths) of 80 proof whiskey, gin or vodka.¹ However, Americans are far from equal in their drinking habits. In a national survey, a third of adults report they do not drink. Another third report drinking just over two drinks per week (0.21 oz. of absolute alcohol/day), and the remaining third report consuming an average of 14 drinks per week. A tenth of the drinking population consumes half the alcoholic beverages sold (Fifth Special Report to the U. S. Congress, 1983).

Recent national surveys suggest that 6% of Americans are involved in substance abuse; of this 80% are alcohol-related. Alcohol abuse and addiction threaten the health, safety and

¹ Assuming 0.6 oz. absolute alcohol = 1.5 oz. 80 proof spirits = 5 oz. table wine (12% alcohol) = 12 oz. beer (5% alcohol) Fifth = 750 ml or 25.4 oz.

quality of life of many citizens. There was a substantial price tag of \$10.8 billion in 1980 for treating alcoholism and alcohol-related illness. The total treatment bill is estimated to have increased to \$14.9 billion in 1983. An estimate of costs to society in 1980 of problems related to alcohol was \$89.5 billion in treatment, lost life and productivity, property loss, crime, and welfare, and in such indirect costs as incarceration and victim losses. When extrapolated to 1983, this figure amounts to \$116.7 billion (Harwood, Napolitano & Kristiansen, 1984). In 1980, out of 18,577 deaths related to alcohol, 4,350 were due to alcohol dependence syndrome, and 9,166 due to alcohol cirrhosis of the liver (Ravenholt, 1983). Clearly, there is much evidence for concluding that alcohol used heavily is costly in human and economic terms.

The serious consequences of alcoholism have stimulated the rapid growth of the Alcoholics Anonymous (AA) movement, which in turn has influenced the approach of alcoholism treatment centers throughout the United States. One of the most widespread and deeply felt convictions among professionals working in these centers is that permanent abstinence is vital to recovery from alcoholism. This view is in accord with the basic principle of Alcoholics Anonymous (AA) that the alcoholic person who attempts moderate drinking will certainly return to uncontrolled drinking. The traditional view of alcoholism is that it is a disease which

can never be "cured," but which, like some other diseases, can be arrested. According to this view, once an alcoholic starts drinking, a demand for more alcohol is set up in the organism resulting in intoxication (Jellinek, 1952a). The phenomena of "craving" and "loss of control" have been invoked as an explanation for relapse (World Health Organization, 1955). Most of the treatment programs accept this orientation and stress the need for complete abstinence.

Despite the prevalence and popularity of a pro-abstinence viewpoint, in recent years there has been a trend to recommend controlled drinking as an alternative treatment strategy for some alcoholics. One of the main arguments against abstinence is that many alcoholics are reluctant to face a life of permanent abstinence (Reinert & Bowen, 1968) and abstinence treatment goals deter many alcoholics from seeking treatment (Drewery, 1974). The debate between abstinence versus controlled drinking as a treatment goal has been going on for the last 15 years.

Before going into the pros and cons of these two major approaches to the treatment of alcoholism, I would like to explore the following basic questions. What is the definition of alcoholism? How is it diagnosed? Is alcoholism really a "disease" as widely advocated in the traditional alcoholism treatment centers? Is there any firm evidence of "craving" and "loss of control" and, if so what is the linkage to the disease concept of alcoholism? What are the choices for the treatment of

alcoholism? What are the treatment approaches with a goal of total abstinence? What are the treatment approaches with a goal of controlled drinking? Is there any evidence from controlled drinking studies that controlled drinking is a desirable goal for some alcoholics? What has been the outcome of direct comparative studies between abstinence versus controlled drinking? What kind of population can benefit from controlled drinking? Are there other factors which play a significant role in determining the suitability of particular treatment goals? What is the implication of the controlled drinking controversy? Are there any advantages of controlled drinking over abstinence? How about its limitations? In conclusion a summary of the important findings from controlled drinking experiments and suggestions to improve upon those studies by proposing a research design will be made. The emphasis of research report will have significance not only for academic research on abstinence versus controlled drinking, but also for clinical practice.

DEFINITIONS AND DIAGNOSIS OF ALCOHOLISM

When the term "alcoholic," "alcoholic abuser," or "problem drinker" is used to designate a person who abuses alcohol, it should be noted that these designations are somewhat less than precise. In the alcohol misuse field, the most frequently used label is "alcoholism." According to the National Council on Alcoholism (NCA) criteria, alcoholism is a chronic, progressive, relapsing disease often ending in death, characterized by tolerance to the effect of alcohol, the presence of a withdrawal syndrome and/or the presence of physical complications of alcohol (Seixas, 1975). The Diagnostic and Statistical Manual of Mental Disorders (American Psychiatric Association, DSM III, 1980) use the expressions "alcohol abuse" and "alcohol dependence." The diagnostic criteria for alcohol abuse consists of: a) pattern of pathological alcohol use; b) impairment in social or occupational functioning due to alcohol use; and c) duration of disturbance of at least one month. The diagnostic criteria for alcohol dependence consists of the first two categories stated above plus either indications of tolerance or withdrawal. The World Health Organization (WHO), after much thought and discussion, has opted for the term "drug dependence" for both terms "drug addiction" and "drug habituation." The consistent elements of the alcohol

dependence syndrome, involve narrowing of the drinking repertoire, salience of drink seeking behavior, increased tolerance to alcohol, repeated withdrawal symptoms, relief drinking, compulsion to drink and readdiction liability (Edwards, Gross, Keller & Moser, 1976; Edwards, Arif & Hudgson, 1981).

There are many tests utilized in a clinical setting to detect alcoholism. The most widely used diagnostic screening instrument is the Michigan Alcoholism Screening Test (MAST) devised by Selzer (1971). It consists of 25 questions that can be rapidly administered. Because MAST is a self-reporting instrument, critics have been concerned about a high false-negative rate from alcoholics who deny their symptoms, refuse to admit to certain behavior, or who otherwise will not identify themselves as alcoholics (Kaplan, Pokornu & Kanas, 1975). Yet the large number of studies indicating the usefulness of the MAST in identifying alcoholics is impressive (Powers & Spickard, 1984).

The social learning model basically assumes that drinking is a learned behavior, one that ranges along a continuous dimension of alcohol consumption. From this perspective, there is no clear line of demarcation between the social drinker and the "alcoholic" -- instead, there are various degrees of drinking-related problems that people may or may not experience. Instead of a dichotomy between those who have the disease "ism" and those who do not, there is an assumption that there are many types of social drinkers

(light, moderate, heavy and so on), and many potential problems that may befall the drinker (Cahalan, Cisin & Crossley, 1969). Social learning theorists, rather than asking "What is alcoholism?" or "Is this person alcoholic?", prefer to ask the following types of questions: "How can we describe the pattern of this person's drinking behavior?" "What are the antecedents and consequences of this person's drinking?" "Under what conditions was this drinking problem acquired, and how is it maintained?" "What factors can be manipulated to change this person's drinking habits?" On these bases a behavioral assessment of problem drinking is developed. One such instrument is The Drinking Profile (Marlatt, 1976).

The problem with these instruments is that they rely heavily on self-reporting and full cooperation from persons taking the required test. One way to correct the problem is to corroborate the self-reporting with extensive observations by diagnosticians or other trained persons. The other solution is to use biochemical alternatives like determinations of alcohol in the blood or breath to confirm alcohol abuse. Plasma AANB (Shaw, Lue & Leiber, 1978) and GGTP levels (Rollason, Pincherle & Robinson, 1972) are increased after alcohol consumption by different mechanisms and may complement each other as tests for heavy drinking. By looking at relations among various kinds of indicators we may get some notion of how we might go about differentiating between types and degrees of alcohol dependence.

DISEASE CONCEPT OF ALCOHOLISM

Students of alcohol problems have disagreed about the meaning of the term "alcoholism" since it was invented in 1849 by Magnus Huss. While disagreement seems to be as intense as ever, a considerable amount of progress has been made in establishing the ground rules for a resolution of the dispute. Progress was first made when the concept of drunkenness was "medicalized" in the form of a moral-physical condition called intemperance. Later on, it was considered a physical and psychological disease as we have come to label "alcoholism." In colonial times the drunkard was viewed as a sinner and drunkenness was considered a moral vice. Because intoxication was assumed to result from the individual's free choice, the drunkard, not society or the bottle, was considered responsible for the resulting condition. After the American revolution this traditional free will or moral vice position was rivaled, if not supplanted, by a radically different "disease" concept. That concept absolved the drinker from moral responsibility by attributing causality to either the agent or the condition.

In the 1950s, E. M. Jellinek rediscovered and redefined the disease concept in a way that gave inspiration to clinicians and researchers alike. In his classic book, The Disease Concept of

Alcoholism, Jellinek (1960) described the following main types of alcoholism.

"Alpha" alcoholism represents a purely psychological continual dependence or reliance upon the effect of alcohol to relieve bodily or emotional pain. "Beta" alcoholism is that type of alcoholism in which such alcoholic complications as polyneuropathy, gastritis and cirrhosis of the liver may occur without either physical or psychological dependence upon alcohol. "Gamma" alcoholism is the term used to refer to what Jellinek (1952a) called "alcohol addiction" and is the type most often cited by Alcoholics Anonymous. It is characterized by: 1) acquired increased tissue tolerance to alcohol; 2) adaptive cell metabolism; 3) withdrawal symptoms and "craving," i.e., physical dependence; and 4) loss of control. In gamma alcoholism there is definite progression from psychological to physical dependence and marked behavior changes. "Delta" alcoholism shows the first three characteristics of gamma alcoholism just listed, but instead of loss of control, there is inability to abstain. This type is associated especially with the inveterate drinking found in France and other wine-drinking centers. Jellinek emphasized that only gamma and delta types are diseases; the reason being that only they entail physiopathological changes analogous to those in drug addiction. These physiopathological changes i.e., adaptation to cell metabolism, acquired increased tissue tolerance and the withdrawal symptoms, bring about the "craving and loss of control," or the inability to abstain.

There has been much criticism of a disease model of alcoholism from social learning theorists. The basic theoretical assumptions underlying the traditional diagnosis model stem from the notion of alcoholism as a unitary disease entity. The patient either has the disease or does not have it. In terms of self-report measures, the diagnosis of alcoholism within this context is usually made on the basis of a threshold series of criteria: Once the patient has been found to have a sufficient number of signs or symptoms, that individual is thereby "over the threshold" and can be classified as alcoholic. Threshold diagnostic instruments are limited primarily by the fact that they yield a binary yes or no outcome and tell us virtually nothing about the frequency, variability, or the pattern of the respondent's drinking behavior. The traditional clinicians emphasize that once the person crosses that threshold then that person has become disabled from choosing invariably whether he will drink on any occasion or not. An addict may sometimes go about rationally debating the question, "to drink or not to drink" and sometimes, but not consistently, his disease is precisely just this, knowing that at some time in the future, he will drink and eventually get drunk (Keller, 1972). The phenomena of "craving" and "loss of control" have been invoked as explanations for relapse. This phenomenon of "loss of control," or "craving," and its crucial relation to uncontrolled drinking and disease concept of alcoholism is discussed in the following section.

LOSS OF CONTROL, CRAVING AND ITS RELATION TO DRINKING

The expression "first drink, then drunk" is fervently believed by many alcoholics. The implication of this expression is that if an alcoholic consumes one drink, or even allows liquor to touch his lips, he is doomed to continue drinking until he is drunk. According to Alcoholics Anonymous (AA) once a person has crossed the invisible borderline from heavy drinking to compulsive alcoholic drinking, that person will always remain an alcoholic. According to AA there can never be any turning back to "normal" social drinking. "Once an alcoholic, always an alcoholic" is a simple fact that alcoholics have to live with (This is AA, 1984). The only alternative, according to AA, is to stop drinking completely, to abstain from even the smallest quantity of alcohol in any form. The "loss of control" phenomenon comes from Jellinek's (1952a) phases of alcohol addiction where he states that "any drink of alcohol starts a chain reaction which is felt by the drinker as a physical demand for alcohol." Such drinkers feel themselves to be unable to control their craving for alcoholic drinks after even a small, and sometimes inadvertent, intake of alcohol.

In an experiment on loss of controlled drinking in the abstinent alcoholic (Nutrition Reviews, 1966), small doses of alcohol in disguised form were fed to abstinent alcoholic patients.

No unusual craving for more alcohol was produced, but when the dosage was increased, it produced some degree of craving. In another experiment, while observing moderate drinking by alcoholic addicts, Glatt (1967) concluded that a small minority of gamma alcoholics are, apparently, able to return to "moderate" drinking for a short period only. He proposed two working hypotheses to explain this rare phenomenon: 1) the concept of critical threshold, a blood alcohol level and range varying from addict to addict, and in the same addict from time to time; and 2) the possibility that some addicts, following some process of emotional maturation and increasing insights, and the reduction of social pressure to drink, learn to discipline their drinking habits and ration their drinks so as to remain below their individual "loss of control threshold." The extreme difficulty of constantly maintaining the required amount of self-discipline, the overriding influence of unconscious motivations, the probability that the threshold may be subject to great variations even in the same individual, and the likelihood that such "nibbling" is not satisfactory to the drinker, explain why, as a rule, such efforts are bound to fail sooner or later (Glatt, 1967, p. 272). In a similar vein, Keller (1972) states that an alcoholic who has started to drink, but has not reached his critical end point, can stop. And if he so stops, then there is no getting drunk or going into a bout, but rather, for the time being, it looks like any non-alcoholic's controlled drinking.

Keller further states that essential to the notion of loss of control is that an alcoholic cannot consistently choose whether he shall drink or not. There comes an occasion when he is powerless, when he cannot help drinking and if he drinks, he cannot consistently choose whether he shall stop. That is the essence or nature of drug addiction, thus lending a support to the disease concept of alcoholism. Keller agrees with Glatt (1967) that the best advice for the prudent alcoholic is to abstain.

Ludwig, Wikler and Stark (1974) conducted studies to explicate some of the major determinants of relapse in alcoholics by manipulating craving and alcohol acquisition behavior through appropriate interoceptive and exteroceptive stimulation. Their results indicated that craving and alcohol acquisition behavior as well as conversion from abstinence to alcohol acquisition, were a function of the combination of appropriate cues (i.e., interoceptive and exteroceptive cues). Ludwig, Bendefeldt, Wikler and Cain (1977) operationally define loss of control (LOC) as the relative inability to modulate ethanol consumption. Their study indicates that a substantial number of alcoholics demonstrate a relative inability to regulate their ethanol consumption in order to sustain a stable blood alcohol level within a designated pre-established range. Their findings support the theories that a possible neurophysiological feedback dysfunction in respect to interceptive cues may underlie the phenomenon of loss of control observed in alcoholics.

The above discussion indicates that crucial variables governing the predisposition to loss of control may be neurophysiological in nature, thereby adding support to a disease concept of alcoholism. Presumably, those alcoholics who possess impairment in identifying or responding to appropriate interoceptive cues should either be considered inappropriate candidates for social drinking programs or should be assigned to special programs which train them to discriminate according to blood alcohol levels.

On the other hand, there have been several studies on the loss of control and disease concept of alcoholism, whose conclusions are in some ways different from the studies stated before. Sobell, Sobell and Christelman (1972) explored the familiarity with and connotations of the expression, "First drink, then drunk," for 30 chronic alcoholics, and, by reviewing the data of 214 chronic (gamma type) alcoholics who became intoxicated to some degree as a result of experimental procedure. In part one of their study of 30 male alcoholics, 22 of the subjects stated they believed the "First drink, then drunk" hypothesis. However, out of that, 19 subjects responded that they could stop drinking after one drink, if they wanted to. The connotation of the hypothesis for the alcoholic, therefore, seems to be related to motivational states. In the second part of the experiment, 101 subjects consumed between 1 and 6 oz. of 86 proof liquor (or

its equivalent) during 1 to 15 experimental sessions. Only two left the hospital for more alcohol during the course of treatment. Similarly, 113 subjects participated in from 1 to 5 experimental sessions. Once again, only 5 subjects found it necessary to leave the hospital and obtain more liquor during their course of treatment. From these results Sobell et al. concluded that a literal interpretation of the expression "First drink, then drunk," is invalid.

Paredes, Mood, Seymour and Gollob (1973) induced controlled drinking in 27 chronic alcoholics. The men received substantial amounts of alcohol, drank in a predesignated area, initiated and stopped drinking on request and did not display provocative behavior while drinking. The periods of induced drinking were preceded and followed by at least two weeks of abstinence. An objective sign of their ability to control their behavior was that they remained voluntarily in the hospital to complete the program after being challenged with alcohol. Their conclusion was that alcohol could be given to alcoholics without necessarily triggering alcohol-seeking behavior, thus questioning the validity of the loss of control hypothesis.

Marlatt, Demming and Reid (1973) conducted studies indicating that loss of controlled drinking in the form of increased consumption by alcoholics who were administered alcohol did not occur during the drinking task. Another main finding of their

study was that beverage consumption rates for both the alcohol mixture and tonic alone were determined largely by the subject's expectancy of the content of the beverage. This finding, obtained with both alcoholic and social drinking subjects, is in marked opposition to assumptions which suggest that the physiological effects of alcohol alone are responsible for increases in the alcoholic's drinking behavior.

One might question the applicability of the above observations because they took place in a closed institutional setting, and it has been observed that many alcoholics while institutionalized do not suffer from being deprived of alcohol or do not even feel any need for it (Bowman & Jellinek, 1941). They feel the need only when at large in the world. Nevertheless, these observations are valid and relevant, because the erroneous notion of loss of control is based on a belief in a physical dependence which precipitates uncontrollable drinking after any amount of alcohol enters the organism. The consistent experimental observations, in apparently gamma-type alcoholics, decidedly belie that notion. They suggest that something more than alcohol is a requisite. The definition of "loss of control" as meaning that any small amount of drink can set off a bout with alcoholism, is based not on any independent systematic observation. It is based mainly on the exaggerated reportage of alcoholics trying to stay sober and indeed needful of scaring themselves and their fellow alcoholics in AA from taking

that first drink. The original source of error was in Jellinek's article (1952a) on the phases of alcohol addiction in a WHO technical report, where he wrote that "as soon as any small quantity of alcohol enters the organism a demand for more alcohol is set up which is felt as a physical demand by the drinker, but could possibly be a conversion phenomenon." Jellinek continued that "this demand lasts until the drinker is too intoxicated or too sick to ingest more alcohol" (Jellinek, 1952a, p. 33). In the revised version of the phases of alcohol addiction, published the same year in Quarterly Journal of Studies on Alcohol, Jellinek (1952b) corrected himself by stating that "any drinking of alcohol starts a chain reaction which is felt by the drinker as a physical demand for alcohol" and he continues, "this state, possibly a conversion phenomenon, may take hours or weeks for its full development" (Jellinek, 1952b, p. 679). From this statement it is obvious that an alcoholic who has started to drink, started the so-called chain reaction, but has not reached its critical end point, (referred to as the "threshold" in other studies) can stop. That difference in these two texts went unnoticed. The AA capitalized on the first version by encouraging fellow members to stay sober; the critics used the first version to discredit the loss of control phenomenon. I agree with Keller (1972) that psychological and environmental factors may have more influences in initialing "loss of control" drinking than the biochemical abnormality.

TREATMENT APPROACHES WITH THE GOAL OF TOTAL ABSTINENCE

Siegler, Osmond and Newell (1968) describe the various models of alcoholism and the traditional treatments. The "dry" moral model represents alcoholism as a moral failing. The treatment is to threaten, punish and enforce treatment like church attendance and behavior therapy. The prognosis is poor. In the case of the "wet" moral mode, alcoholism is an unacceptable form of drinking behavior. Alcoholics are drinkers who do not obey the rules of the drinking society; they behave badly when drunk. The treatment is usually punishment from the family to correct the maladaptive behavior. The prognosis in this case is also poor.

The Alcoholics Anonymous (AA) model states that alcoholism is an incurable, progressive and often fatal disease. It results from physiological, emotional and spiritual impairments. Alcoholics Anonymous treatment is a self-help approach to deal with emotional, social and spiritual problems. Alcoholics Anonymous is regarded by many professionals and laymen as the most useful treatment resource for alcoholics. Referral to AA is routine in some programs, and regular attendance at AA is required in others. A number of important treatment programs are based entirely on AA philosophy, and many others have incorporated elements of it in their operation (Turner, 1979). The prognosis with AA is generally good.

The "psychoanalytic" model sees alcoholism as a symptom of a deep underlying neurosis, as a function of addictive personality,

and as an expression of underlying oral conflicts. The preferred treatment is psychotherapy which may be needed for a long time during the process of growing up.

In the "Family-Interaction" model, alcoholism is seen as a form of family interaction in which one person is assigned the role of the "alcoholic" while others play the complimentary roles, such as the martyred wife, the neglected children, the disgraced parents, and so forth. As this deadly game is played by mutual consent, any attempt to remove the key factor, the alcoholic, is bound to create difficulties for the other family members, who will attempt to restore their former game. As the game is of far greater interest to the family than to the therapist, the family is almost bound to win. The family may succeed in including the therapist as another role in the game.

The "old" medical model considers alcoholism as a serious, progressive and eventually fatal disease which is caused by the immoral behavior (i.e., excessive drinking) of the patient himself. Treatment involves controlling medical problems and trying to prevent multiple addictions. The ultimate goal is safe, social drinking, but unfortunately, this is rarely achieved, because the alcoholic will not take care of himself. The "new" medical model sees alcoholism as a progressive, often fatal disease. Addiction results from defective metabolism as well as psychological and sociological factors. This "new" medical model was officially

launched in 1956 when the American Medical Association recognized alcoholism as a disease. This model emerged eventually with the disease concept of alcoholism (Jellinek, 1960). The treatment usually consists of detoxification followed by total abstinence. The rehabilitation services include teaching the patient and his family about the disease of alcoholism, psychotherapy and attending AA meetings. The traditional treatment methods utilized in the total abstinence goal are an eclectic mixture, based far more on tradition than on empirical research and outcome results. Among the many treatment modalities currently in vogue are personality assessment, individual therapy (including psychoanalysis), group therapy, psychodrama, hypnosis and/or relaxation, family therapy, pastoral counseling and bibliotherapy.

Comparison of the old and new approach model indicate many differences. The first difference to be noticed is that while both models agree that alcoholism is a disease, the new one is concerned only with a possible medical etiology, while the old one is concerned with what might be called the "moral etiology" of the disease. In the dimension of treatment, it should be noticed that while the new model stresses total abstinence, the old model aims at restoring the patient to social drinking. The patient and families of alcoholics, in the new model, are expected to inform themselves about the disease concept of alcoholism and cooperate in the recovery process. In the old medical model, the family is expected to police the behavior of the alcoholic, using moral

sanctions to bring him to line. In summary, the new medical model treats alcoholism as a bonafide disease, without reservations, while the old medical model considers alcoholism as a disease with moral overtones.

Comparison of "new" medical models with AA indicates that even though both consider alcoholism as a special sort of incurable disease, in AA there is heavy emphasis on spiritual problems. The central importance of this spiritual aspect of AA is evidenced from studying the 12 steps and 12 traditions (This Is AA, 1984).

The models which have been explored above exist because they give a usable explanation of alcoholism. Many alcoholics achieve sobriety through AA. Alcoholics do play neurotic patterns. The families of alcoholics are engaged in game-like behaviors which they are reluctant to give up; alcoholic patients do abuse their medical privileges by undoing the doctor's work. Not only are all the models potentially viable, but most people use more than one of them. Except for a few purists, people will cheerfully abandon one model for another when the model they are using fails to provide a satisfactory answer. The important thing to bear in mind is that the models must be practical and economical. Both the psychoanalytic and the family interaction models require skillful and highly trained personnel who are not only very expensive, but often simply not available. And in the end, models must make sense, both to professional and lay people.

TREATMENT APPROACHES WITH THE GOAL OF CONTROLLED DRINKING

Behavior modification programs for alcoholics have focused attention on a drinking goal that is defined by the establishment of control over the drinking patterns and situations, the consequences of drinking, the frequency of drinking, and the amount of alcohol consumed. Such a "controlled drinking" pattern may involve changing the functions which drinking serves for an individual. The person may also learn to monitor and avoid high risk circumstances where drinking is apt to have self-damaging consequences. The various protocols usually involve an attempt to assess the person's drinking patterns and the antecedents and consequences of that drinking. There is also an attempt to specify the changes to be made in behaviors, and the reinforcement contingencies required to achieve and maintain the desired behavioral goals. In some cases, behavior modification may not seek to change the individual's coping style that has led to impulsive and deleterious drinking, but may simply modify his environment so that he no longer encounters circumstances conducive to deleterious drinking. Since alcohol problems typically result in manifold disruptions in a person's capacity to function, it may only be necessary to decrease drinking in some instances to effect substantial rehabilitation. The standard techniques utilized to attenuate one's drinking are listed in the controlled drinking studies.

CONTROLLED DRINKING STUDIES

Normal Drinking in Former Alcoholics

The question whether an alcoholic can ever drink normally again following treatment is scarcely an open one among most observers in the field of alcoholism. The prevailing view has been that alcoholism is a "disease" which may be arrested by continuous sobriety, but which cannot be cured by any means known. Davies (1962) caused a stir in the world of alcoholism when he reported that 7 of 93 former alcoholics, addicts, were found on followup to have been drinking socially from 7 to 11 years after discharge from the hospital. None had been drunk in the followup period and all were better adjusted socially than they had been prior to admission. Davies had no explanation for the appearance of benign drinking patterns, but he observed that 4 of 7 had given up pre-treatment occupations which had exposed them to opportunities to drink. Davies did not provide any definition of normal drinking but simply reported that his patients tended to take up to three pints of beer or less each evening. One of his patients drank only at Christmas or with meals when on holiday abroad. However, this patient continued to take disulfiram on business trips, suggesting that even after seven years he felt the need to be on guard against

excessive drinking in certain dangerous situations. Another patient drank an occasional glass of beer for 10 years but gave up drinking completely when a peptic ulcer was diagnosed. Another patient drank a pint of beer in the evenings. He continued to have attacks of panic. Although the drinking habits of these three patients were not comfortable, Davies included them with others, describing the drinking of all seven as comfortable and stressing that none of the seven patients had been drunk during 7 to 11 years.

A measure of interest was aroused by Davies' article. The Quarterly Journal of Studies on Alcohol published a special supplement in 1963 containing only comments on his paper, almost all of which were negative. Several commentators were adamant that in many years of practice they had never encountered a true alcoholic who had recovered the ability to drink normally. Williams (1963) stated that "in many years of clinical experience" he had not yet met an alcoholic -- a true addict -- who regained control and retained it without complete abstinence. Lemere (1963) even went so far as to propose that inability to drink again in a normal controlled manner be made a defining requirement of alcoholism. Another criticism was that while Davies' seven patients may have been genuine alcoholics, they were not genuine normal drinkers. Smith (1963) suggested that, unlike ordinary social drinkers, these patients would have to engage in a great battle with themselves to stop drinking at the end of an evening. Kjolstad (1963) argued that alcoholics might be able to

consume below a certain threshold level without losing control, but that this was merely "nibbling" which failed to satisfy them. From the discussion on the loss of control described earlier, it is true that alcoholics need to reach a certain threshold before they can lose control of their drinking and as long as they stay within a certain limit, it seemed like controlled drinking.

Several other studies that followed Davies' (1962) article were highly critical of his reporting of normal drinking in former alcoholics. Fox (1967) asserted, "Among my own approximately 3,000 patients not one has been able to achieve this, although almost every one of them has tried" (p. 777).

Pittman and Tate (1972) studied a sample of 255 cases selected from a total of 1,000 persons who, during a 28-month period, were admitted to an Alcoholism Treatment and Research Center (ATRC). Unlike many other ATRC clinics, this ATRC did not require patients to be abstinent from alcoholic beverages upon admission. The investigators of this study did not find any individual who had returned to "normal drinking." In many cases they found moderation of drinking characterized by longer periods of abstinence between drinking bouts and ingestion of small quantities of alcoholic beverages. The authors of this study concluded that in no sense was this moderation to be construed as "normal drinking," as the crucial variable -- loss of control -- was still a factor in the drinking patterns of these patients.

Davies was not the first to report normal drinking in former alcoholics, but he was one of the first to make this group the chief focus of his follow-up, and one of the first to present sufficient case material to refute the charge that his patients had not really been alcoholics in the first place (Davies, 1963).

Previously cited literature on normal drinking in former alcoholics includes many studies. Lemere (1953) studied life histories of 500 deceased alcoholics and found 10% had gradually moderated their drinking in late years. He found 3% who seemed to be "normal" drinkers. Shea (1954) described the detailed case history of an ex-alcoholic. The controlled drinking started after five years of absolute abstinence and was limited to two beers or two glasses of wine in any one day. Selzer and Halloway (1957) followed up 98 patients who were initially committed to state mental hospitals in 1948 and 1949. Out of this lot 18 patients became abstinent and 16 became moderate drinkers. Brief histories of five of the patients indicate that three out of five drank only beer, one remarried and one moved to a low-pressure job.

After the publication of Davies' article in 1962, many other reports of normal drinking were reported in the literature. Kendell (1965) found normal drinking in a follow-up sample of 62 untreated cases. In the four cases, two had an abstinence period before starting to drink, and two did not; all drank beer, never spirits, and only one ever got drunk. Bailey and Stewart (1967) found six cases of normal drinkers three or four years later out of 91

alcoholics originally picked up in a community survey. Bailey and Stewart, however, cautioned that a small percentage (about 7%) observed in their study posed less a threat to the current therapeutic goal of abstinence for all alcoholics than a challenge to research.

Up to this point the terms "social" and "normal" drinking have been used interchangeably. Reinert and Bowen (1968) introduced the term "controlled drinking" to describe an observed outcome of alcohol treatment in which the patient managed to resume moderate drinking by observing strict rules of self control. According to Reinert and Bowen, a normal drinker imbibes alcoholic beverages on occasion with the knowledge and complete confidence that well before he gets into any trouble he will have simply lost his appetite for more. In contrast, the controlled drinker has no such feelings of security and has learned from past experience the bottomless pit that may sometimes be opened up by taking the first of "a few drinks." Their conclusion is that normal use of alcoholic beverages by those who had once been identified as alcoholics is a rare occurrence. Social drinking in these cases is generally confined to the cautious use of relatively small quantities of beer or wine. Nevertheless this minority of cases has been discovered consistently enough to indicate a need for further research to elucidate the many questions posed in relation to the few alcoholics able to resume controlled drinking.

Outcome of Studies Aimed at Controlled Drinking

Previously the debate had been over "incidental" moderation resulting from abstinence oriented programs. In this section discussion will focus on those studies which are specifically aimed at investigating controlled drinking treatment. The standard techniques used for controlled drinking are discriminated aversive control (Lovibond & Caddy, 1970; Mills, Sobell & Schaefer, 1971; Sobell & Sobell, 1972b, 1973a, blood alcohol discrimination (Foy, Nunn & Rychtarik, 1984; Vogler, Compton & Weissbach, 1975), reinforcement contingency (Cohen, Liebson, Faillace & Speers, 1971), behavior contingency (Bigelow, Cohen, Liebson & Faillace, 1972; Cohen, Liebson & Faillace, 1973), behavior self control training (Foy, Nunn & Rychtarik, 1984; Miller & Joyce, 1979; and Sobell & Sobell, 1972b, 1973a), self monitoring (Sanchez-Craig, 1980; Strickler, Bradley & Maxwell, 1981), and videotape self confrontation (Sobell & Sobell, 1972b, 1973a; Vogler, Weissbach & Compton, 1977). Because of the varying degrees of conception, methodology, techniques, population characteristics, control, follow-up and drop rate, these studies will not be grouped together. Instead they will be reviewed individually in order of succession, and the important findings summarized at the end of this section.

The first attempt to evaluate systematically the effectiveness of controlled drinking began with the work of Australian psychologists Lovibond and Caddy (1970). The study involved 44 subjects (35

males and 9 females), mostly self-referred, who had a history of alcoholism averaging 10 years and who had been hospitalized many times. Out of these 44 subjects, 13 were randomly assigned for the control group and 31 for the experimental treatment. The treatment procedure consisted of first training to discriminate blood alcohol concentration (BAC) from zero to 0.08%. In the next phase, drinking was followed by strong electric shock if the BAC was above 0.065%, and was allowed to occur with impunity below this level. The control group was given non-contingent shocks during conditioning sessions, but otherwise treated identically. Outcome was measured through self reports even though the information was also collected from family members or other informants (no mention is made of the discrepancy, if any, between two sources). Out of 31 experimental subjects, three dropped, seven achieved partial success and 21 were regarded as completely successful during 16-60 weeks of follow-up. In comparison, out of 13 subjects in the control group, only five received more than two treatment sessions and no follow-up data are available for them.

Due to the inadequacy of the control procedure, this study is not an adequate test of the effectiveness of controlled drinking treatments, even though it claims a 67 percent success rate for the experimental group.

Mills, Sobell and Schaefer (1971) trained 13 hospitalized male alcoholics to decrease the amount and rate of drinking through

discriminated aversive conditioning. During experimental drinking sessions in a specially equipped bar, subjects could avoid shock by drinking like a typical social drinker, but received painful electric fingershocks whenever they behaved like alcoholics. Their study indicated that four of the subjects emitted the required behavior repertoire in an exaggerated fashion from the first day of drinking. They never ordered more than three mixed drinks, and consumed these in exceedingly small sips (30 or more). The remaining nine subjects learned these behaviors over a period of 12-14 sessions. No attempt was made to establish the generalization of this newly acquired behavior after discharge from the hospital. The author of this study, however, suggested that in order to effect more generalization, additional training sessions needed to be conducted in which the bulk of participants are actually social drinkers and the alcoholic is socially reinforced for moderate drinking patterns. Also needed will be booster treatment either of the outpatient variety or in the field.

Cohen, Liebson, Faillace and Speers (1971) demonstrated that excessive drinking could be moderated by a reinforcement contingency. The reinforcer for moderation was money. Subjects were four divorced white male, chronic alcoholics, who ranged in age from 28 to 39 years. Delay in reinforcement was the first experimental manipulation. If the subjects drank, payment for abstinence was increased. If they abstained, the delay in reinforcement was

increased. Their study indicated that delay of reinforcement weakened abstinence, and an increase in the magnitude of reinforcement reinstated it. A primary dose of alcohol was the second experiment. The subjects could earn money each time that they abstained or stopped drinking after a priming dose up to 300ml of 95 proof ethanol. If the subjects drank following the priming dose, the incentive for abstinence following the priming dose was increased on the next protocol. If they abstained, the priming dose was increased. The results of the second experiment showed that priming dose weakened the subsequent abstinence, and an increase in the magnitude of reinforcement reinstated it. These data from first and second experiment indicate that controlled drinking might be maintained if the reinforcers dispensed to the alcoholic were made contingent upon moderate drinking. In another instance, Cohen, Liebson, Faillace and Allen (1971) designed two experiments to determine conditions under which moderate drinking could be maintained for five days in succession. Five chronic alcoholics were hospitalized and given access to substantial quantities of ethanol in an effort to limit their drinking by the application of contingency - management procedures. The subjects had the option to drink up to 24 ounces of 95 - proof ethanol on weekdays for five consecutive weeks. During the first, third and fifth weeks of the experiment, the contingent weeks, if the subject drank five ounces or less he was in the enriched environment. If he drank more than five ounces he was in impoverished environment.

During the second and fourth weeks, the noncontingent weeks, moderate drinking was not differentially reinforced; no matter how much the subject drank, up to 24 ounces, he was impoverished. The results of their study showed that all five subjects drank five ounces or less during the contingent weeks most of the time, and drank more than five ounces in noncontingent weeks. This experiment demonstrated that moderate drinking could be maintained through contingency - management. The question raised in this experiment was whether the increased drinking in weeks second and fourth was due to the absence of an incentive for moderation or due to impoverished environment. In the second experiment the conditions for weeks first, third and fifth were the same as that for the previous experiment. In the second and fourth weeks, the noncontingent weeks, moderate drinking was not differentially reinforced. No matter how much the subject drank up to 24 ounces, he was enriched. Their result indicated that all subjects drank five ounces or less during the contingent weeks and more than five ounces during the non-contingent weeks. The second experiment demonstrated that it was the absence of reinforcement contingencies for moderation, rather than living in an impoverished environment, which resulted in excessive drinking. The outcome of these studies has two implications for the analysis and treatment of excessive drinking in chronic alcoholism. These results provide experimental support for both a treatment goal of moderate drinking and a treatment method of contingency planning.

Bigelow, Cohen, Liebson and Faillace (1972) applied the principle of behavior contingency to non-excessive drinking. Nineteen male chronic alcoholic volunteers participated in the experiment. In all cases, 1 ounce of 95 proof ethanol was available for the asking. The upper limit for the day was set at either 10 or 24 ounces. Subjects were further limited to a maximum of 6 ounces within any two-hour period. The subject's behavior was tabulated into three categories: abstinence, moderate drinking (1 - 5 ounces), or excessive drinking (more than 5 ounces). If the subjects either abstained or drank moderately they earned the opportunity to participate in an enriched ward environment with many social and recreational opportunities. Subjects overwhelmingly chose to drink moderately (76.6 percent) in comparison to abstinence (13.7 percent). Excessive drinking occurred only in 9.7 percent of the contingent subject days. All subjects drank excessively when the contingency was not in effect. The results suggest that for chronic alcoholics, moderate drinking can be exhibited when there are reinforcing consequences for doing so.

Gottheil, Alterman, Skoloda and Murphy (1973) studied a group of 7 to 10 volunteer alcoholic patients in a closed ward. The fixed interval drinking decisions (FIDD) program was implemented in which alcohol was available and patients could elect to drink or not to drink at predetermined intervals. Of 66 patients who completed the program without rewards or punishment for drinking

or abstaining, 44% did not drink at any time; 33% drank throughout the drinking phase of the program, and 23% began drinking and then stopped. The results of this study questioned the assumption that drinking by alcoholics necessarily resulted in an irresistible craving, more drinking and a loss of control. The authors suggested that a controlled drinking goal is possible, however, they point the need for research into the circumstances and maneuvers that influence resistance to drinking.

Cohen, Liebson and Faillace (1973) conducted a study with three male chronic alcoholics who were given the opportunity to drink up to 24 ounces of 95 proof alcohol everyday for 17 to 20 days. If subjects drank five ounces or less, they remained in the enriched environment and if they exceeded this limit they were in an impoverished environment. The results of this study, like the previous one, indicated that moderate drinking by chronic alcoholics is possible, when continuous heavy drinking is a possible alternative behavior. These data provide further support for moderate drinking as a possible therapeutic goal for alcoholics.

Orford (1973) analyzed drinking patterns of 77 married male alcoholics for a period of 12 months immediately following their intake into outpatient treatment. There were only three patients who had returned to a pattern of drinking which was, by their own and by their wives' accounts, totally controlled. There were wide individual differences among the remainder in the uniformity with which drinking was uncontrolled. Two extreme groups were identified.

In 22 cases patients and their wives agreed that drinking had been totally uncontrolled. In 14 cases patients and wives agreed that drinking had been mainly controlled. There were no differences between two groups in the amount of abstinence reported, but there were major differences in other respects. Mainly controlled drinkers were more likely to think that they had no drinking problem or their problem was of very recent origin, reported significantly fewer symptoms, were much less likely to be institutionalized during the 12-month period, were less likely to think of themselves as alcoholics, and were less likely to express a preference for abstinence as a target. Based on these observations Orford suggested the possibility of discovering a rational basis for deciding on the best course of alcoholism treatment in individual cases.

Silverstein, Nathan and Taylor (1974) trained four chronic alcoholic subjects over a 10-day period by feedback, social reinforcement and token reinforcement methods to estimate their own blood alcohol levels (BALs). During a subsequent three-week period, three of these subjects were then trained to maintain BAL within circumscribed limits of 70-90 mg/100 ml. Contrary to the Lovibond and Caddy (1970) report, their subject lost the estimation accuracy attained during discrimination training when their "information anchors" (largely BAL feedback) were withdrawn. Silverstein et al. question whether the successful outcomes reported by Lovibond and Caddy (21 of 28 alcoholics drinking

socially on follow-up) depended as much on discrimination training and consequent aversion conditioning as on other expectancy or demand variables (1974). Given the importance of a source of external feedback on BAL, both as an aid to accurate BAL estimation and in the context of efforts to control drinking, the authors believe that maintenance of social drinking by some alcoholics probably requires continuing efforts by the alcoholic to ensure a source of at least occasional feedback on BAL on which he can base consequent drinking decisions.

Vogler, Compton and Weissbach (1975) designed a study to evaluate the effectiveness of a combination of behavior modification techniques in changing drinking and related behaviors, and achieving moderation for chronic hospitalized alcoholics. The procedures utilized were videotaped self-confrontation of drunken behavior, discrimination training for blood alcohol concentration, aversion training for overconsumption, discriminated avoidance practice, alcohol education, alternatives training and behavior counseling. All of the techniques were applied to group 1 (n=23), and only the last three techniques were applied to group 2 (n=19). After a one year follow-up, significant decreases in alcohol intake were observed for both groups, but group 1 decreased significantly more than group 2. This suggests some advantage of the videotaped, discrimination and aversion procedures over traditional educational and counseling methods. The experimental design did

not permit a determination of the relative effectiveness of the individual procedures. Vogler et al. do not believe that any one procedure alone is likely to generate significant changes in alcohol abuse.

Ewing and Rouse (1976) attempted to train controlled drinking behavior in alcoholics. Thirty-five patients were referred or self-referred to an outpatient pilot experimental program. Ten people came one time only and decided that they did not want to participate. Eleven others came less than six times, some of them saying they felt too much effort was required of them and that it would be easier to stop drinking altogether. A total of 14 people came at least 6 times and 9 of these came on 12 to 14 occasions. Treatments were held weekly and lasted at least four hours. Those patients who entered the program were immediately introduced to the discriminated aversive conditioning of Lovibond and Caddy (1970). In addition, other therapeutic measures were introduced. The patients were encouraged to modify their drinking behavior by learning to mix more diluted drinks, increasing time between drinks, sipping smaller amounts at any one time, putting the glass down between drinks, and so on. During the treatment sessions, all the patients who came six or more times developed a good capacity to estimate their blood alcohol concentration accurately. All the patients who completed the full program of 12 weekly visits were convinced that they had re-established

control over their drinking by the end of the program. There was no maintenance treatment during follow-up. However, patients were invited to return on a self-selected basis to re-experience the treatment procedure. The follow-up period ranged from 27 to 55 months after the treatment was completed. As this is the longest follow-up study of any attempts to train alcoholics to control their drinking, it will be discussed in detail.

In order to quantify and tabulate the follow-up results, a scoring system was developed as shown in Table 1. This scoring system focuses not only on the degree of control maintained, but upon interpersonal relations, work history and general health. A maximum score of 12 would indicate significant and continued improvement in all four areas. At the time of first follow-up report, only one patient scored 10 and two scored 9.

Ewing and Rouse did not have monthly or periodic scores to present. They provided the poorest score at any point since the treatment was completed. None of the patients who came for five or less times had shown significant improvement, so those are omitted from the discussion. Only 14 patients who had availed themselves of at least six treatment sessions (24 hour minimum) are tabulated in Table 2.

As is evident from the data in Table 2, all the patients scored poorly in the areas of drinking, relationship, work and health history. Glatt (1967) postulated that in chronic alcoholics

TABLE 1
SCORING SYSTEM FOR FOLLOW-UP STUDIES

	<u>Score</u>
I DRINKING	
Full control; no excess ever	3
Good control; excess < time per month	2
Episodes of loss of control (except when and if on Antabuse)	1
No change (except when and if on Antabuse)	0
II RELATIONS WITH SPOUSE, FAMILY, FRIENDS	
Significant improvement independently confirmed	3
Some improvement independently confirmed	2
Improvement claimed by patient only	1
No changes noted or relationship worsened	0
III WORK HISTORY	
Work upgrade in type and performance	3
Working more regularly and better	2
Improvement claimed by patient only	1
No changes noted or worse	0
IV HEALTH HISTORY	
Health improved; no help needed for alcoholism	3
Health unchanged; no help needed for alcoholism	2
Health unchanged; outpatient help for alcoholism (incl. Antabuse)	1
Health unchanged or worse; hospitalized for alcoholism	0

(Adapted from Ewing & Rouse, 1976)

TABLE 2

RESULTS IN 14 PATIENTS WHO ATTENDED 6 or MORE TREATMENT SESSIONS

Patient Number	No. of Sessions Attended	Length of Follow-up (months)	Since Treatment ^a				TOTAL SCORE
			Poorest Scores Drinking	Relation- ships	Work History	Health History	
1	7	55	0	0	0	1	1
5	6	54	0	0	0	0	0
7	14	49	0	0	0	1	1
9	24	51	1	0	0	1	2
10	11	48	0	0	0	0	0
11	8	50	0	0	0	0	0
12	15	47	0	0	0	1	1
13	13	47	0	0	1	1	2
17	7	43	0	0	0	0	0
18	12	42	0	0	0	0	0
20	14	40	0	0	0	0	0
22	12	29	0	0	0	1	1
23	14	28	0	0	0	1	1
24	12	27	0	0	0	0	0

^aFor scoring system see Table 1

(Adapted from Ewing & Rouse, 1976)

there is some threshold level of blood alcohol concentration above which loss of control is initiated so that further drinking is inevitable. It may well be that sooner or later all 14 patients grew careless and exposed themselves to this hazardous situation.

Based on the experience of these patients and long term follow-up, Ewing et al. concluded that any further attempts to train controlled drinking using such methods (as outlined in their research) are unjustified.

Vogler, Weissbach and Compton (1977) evaluated the effectiveness of learning techniques for treating alcohol abuse and achieving moderation using three groups of subjects -- inpatient alcoholics, outpatient alcoholics and problem drinkers. Subjects received various combinations of techniques such as videotaped self-confrontation of drunken behavior, blood alcohol concentration discriminating training, aversion training for over-consumption, avoidance practice, behavior counseling, alternatives training and alcohol education. Subjects in all groups improved in terms of reduction in alcohol intake and in drinking-related variables. Significant between-groups differences in favor of subjects whose training included actual experience in drinking moderately were found only for the inpatient alcoholics. In their studies, the best candidate for moderation was the less chronic, younger drinker with a relatively lower alcohol intake, a more stable vocational record, and no history of hospitalization

for alcohol abuse or physical deterioration from drinking. The special feature of Vogler et al. (1975, 1977) studies has been the inclusion of booster sessions and independent follow-up.

Miller and Joyce (1979) examined the prognostic value of client characteristics of 141 problem drinkers treated with the initial goal of controlled drinking. All clients had received one of several forms of behavioral self-control training. Clients achieving moderation were generally found to have less severe symptoms and less family history of problem drinking than were either abstainers or uncontrolled cases. Females were more successful in attaining moderation, whereas males were overrepresented among abstainers.

Glatt (1980) studied the factors influencing the drinker's ability to control his drinking. The three major factors associated with controlled drinking were "agent" such as concentration and amount of alcoholic drink, "environment" such as drinking alone or in company and "host" such as physiological and psychological aspects. The controlled drinking was likely to be maintained as long as the drinkers drank relatively weak beverage, drank in company of spouse or moderate social drinkers, drank with meals and in a contented, relaxed and cheerful mood. The same individuals usually relapsed into uncontrolled drinking when they gulped spirits, drank alone or drank on an empty stomach, or in particular when they were depressed, tense, frustrated, resentful, tired or bored. Glatt concluded that in theory the great majority of gamma

alcoholics could become moderate drinkers, but in practice under conditions and stress of everyday living, with person and social realities and limitations only a few can expect to achieve moderate drinking for longer periods.

Brown (1980) randomly assigned 60 convicted male drunk drivers to either a conventional drunk driver education course, an education course on controlled drinking, or a no-education control condition. The conventional education course consisted of educational aspects of drinking and driving, drinking and physical health, effects of drinking on the family, and how to modify drinking behaviors. The educational drinking training consisted of self-estimation of BAL, viewing of videotapes, practice in controlled drinking by reducing drink strength, sip size and spacing drinks. Drivers in the two education conditions had improved in psycho-social adjustment at 12-month follow-up, but only those given controlled drinking training showed any significant reduction in the number of days on which they engaged in uncontrolled drinking.

Strickler, Bradlyn and Maxwell (1981) investigated the effectiveness of instructions, self-monitoring and practice in teaching young adult heavy drinkers a specific moderate drinking style. The major finding of this study was that treatment procedures which included watching a role model, practicing the target behaviors, and self-recording were the most effective in

facilitating the acquisition of objective moderate drinking behaviors. The therapeutic implications of these findings lies in teaching young adult drinkers new behaviors such as stress coping skills and assertion skills within a self-control perspective in order to attain a moderate and responsible pattern of drinking.

Kurtz, Googins and Howard (1984) reviewed the research on the success of occupational alcoholism programs (OAPs). Their review indicated that subjects have generally been able to control drinking, but their control erodes over time. Their review of OAP studies indicated poor design, a lack of control group, follow-up periods that were too brief and problems with the selection of subjects, all of which raised serious questions about their validity.

Of all controlled drinking studies described before, only two included control for comparison with the experimental treatment group (Lovibond & Caddy, 1970; Brown, 1980). Due to the inadequacy of control procedures in the Lovibond and Caddy experiment the study is not considered an adequate test of the effectiveness of controlled drinking. The only other study which had adequate control was the educational treatment study of male drunken drivers (Brown, 1980). The findings from that study indicated that those given controlled drinking training had significant reduction in the number of days in which they engaged in uncontrolled drinking compared to the control group.

In order to ascertain if the behavior of controlled drinking learned in a laboratory actually transfers to the natural environment later on, an independent follow-up needs to be completed for those who received treatment. Of all the works listed before, only Volger et al. (1975, 1977) indicate independent follow-up in their reports. Their conclusion was that some chronic alcoholics could be taught to drink in a controlled manner, but the best candidate for moderation was the less chronic, younger drinker with a relatively lower alcohol intake, a more stable vocational record, and no history of hospitalization for alcohol abuse or physical deterioration from drinking.

The Ewing and Rouse study (1976) had the longest follow-up (27 to 55 months), before that, no other study had more than two years of follow-up. A three year follow-up period has been recommended as the minimum necessary when recidivism rates are the criteria used (Maisto, Sobell, Zelhart, Connors & Cooper, 1979). The Ewing and Rouse study focused not only on the degree of control over drinking, but also upon the other important factors like interpersonal relations, work capacity and general health. Their findings indicated that all of the treated alcoholic patients had re-established control over their drinking by the end of training, but in the subsequent follow-up, all failed poorly, not only in the area of drinking, but also in the aspects of social relationship work and health history. Their conclusion was that any

further attempt to train controlled drinking is unjustified. It is quite likely that sooner or later the treated patients cross a certain threshold level of blood alcohol (Glatt, 1977) and expose themselves to loss of control resulting in intoxication. In that regard it is extremely important that booster training sessions be given periodically to maintain skills acquired earlier. Only Vogler et al. (1975, 1977) had included booster sessions in their extended studies. Mills et al. (1971) has also stressed the need for it.

Some of the techniques like discriminant aversion conditioning may indicate positive early results due to initial response-suppression effect that generally "wears off" over time (Marlatt, 1983). This is evident from the follow-up studies of Ewing et al. (1976) and Silverstein et al. (1974). Other techniques like reinforcement contingency and behavior contingency, learned in the laboratory, could be applied in natural settings only with the help of a supporting environment. Vogler et al. (1975, 1977) utilized techniques of videotape self-confrontation of drunken behavior, discrimination training of BAC, aversion training for overconsumption, discriminated avoidance practice, alcohol education and alternatives training behavior counseling. No significant advantages to one set of techniques over the other were found.

From the studies cited in this section, one cannot draw any conclusion as to which technique would be better than others for

the training of alcoholic persons or which technique would work best for a particular kind of population. I agree with Vogler et al. (1975) that one procedure alone is not likely to generate significant change in alcohol abuse.

The controlled drinking treatment has successfully been applied to both chronic alcoholics as well as to problem drinkers, but it has been more successful with problem drinkers with less severe symptoms (Orford 1973; Vogler et al. 1977, and Miller & Joyce, 1979).

Regarding possible sex differences in responsiveness to treatment, almost all the discussion has focused on the treatment of male alcoholism. Miller and Joyce (1979) have reported the only study on record to indicate that female treated clients were more successful in maintaining moderate drinking than male clients.

After reviewing the literature on controlled drinking it appears that subjects have been able to control their drinking during treatment, but their control erodes over time. The results of controlled drinking studies are based on restricted samples of patients under sheltered laboratory conditions. Therefore, the findings may have different implications for treatment application than for research studies. Since the contingencies operating in the treatment setting are not the same as those in the real world, it seems that the controlled drinking treatment goal suffers in the long run due to lack of reinforcers. Therefore, the therapist would need to work with significant others who provide reinforcers. The overall review also indicates lack of appropriate control,

independent follow-up and problems with follow-up procedures in most of controlled drinking studies. Where there has been follow-up, the periods were too brief. The aim of controlled drinking studies has been to teach controlled drinking to alcoholics.

So far there has not been any direct comparison between goals of controlled drinking and abstinence whereby any discussion on the suitability of one over the other could be ascertained. Those comparative studies will be discussed in the next section.

The Rand Report

In June 1976, Rand Corporation published a report titled "Alcoholism and Treatment" (Armor, Polich & Stambul, 1976). The samples of alcoholics studied in the report were drawn from 44 alcoholism treatment centers (ATCs) supported by the National Institute on Alcohol Abuse and Alcoholism (NIAAA). These ATCs offer detoxification, hospitalization, rehabilitation, residential and outpatient treatment. The ATC data base used for the comparative analysis consisted of approximately 14,000 non-DWI clients. Further, female alcoholics were also excluded on the grounds that they constituted separate population from male alcoholics. Six months follow-up was used in this report and completed on 2,371 male clients out of approximately 11,500 (21% of the relevant intake). For the purpose of a more extended follow-up, an additional sample was formed from 8 selected ATCs (out of a possible 44). Interviews were completed for 1,340 clients representing an overall response rate of 62%. Of this sample, approximately 600

were male non-DWI intake, the main target of analysis. The Rand Report reached two particular conclusions that went against much conventional thinking on the subject and provoked a great deal of angry resentment. The first was that many clients gave up drinking excessively with only very minimal treatment or with next to no treatment at all. The second even more provocative and controversial, conclusion was that after treatment, some alcoholics return to normal drinking with no greater likelihood of relapse than alcoholics who choose permanent abstention (Armor et al., 1976).

Armor et al. emphasized that normal drinking in recovered alcoholics must meet all of the following criteria:

1. Daily consumption of less than 3 oz. of ethanol,
2. Typical quantities on drinking days less than 5 oz.,
3. No tremors reported, and
4. No serious symptoms.

Normal drinking was one of the three types of remission patterns distinguished by the study; the other two were longer term abstention of six months or more, and short-term abstention lasting anywhere from 1 - 5 months before the follow-up interview. According to this definition of remission, about one-fourth of the sample were long-term abstainers, one-fifth were short term abstainers, one-fifth were normal drinkers, and one-third were non-remissions at the 18th-month follow-up. According to this report, findings that some alcoholics appear to return to moderate drinking without serious impairment and without relapse, and that permanent abstention is relatively rare, suggest the possibility that normal drinking might

be realistic and an effective goal for some alcoholics. These findings were criticized by many professionals.

At the National Institute on Alcohol Abuse and Alcoholism (NIAAA), the Rand Report was criticized for lack of acceptable response rate (21% overall response rate for 6 months follow-up and 62% for 18 months follow-up for selected ATCs) faulty research design (non-random selection), and lack of adequate control. The NIAAA issued an announcement expressing concern over the manner in which the results of the Rand Report had been isolated and construed to suggest that recovered alcoholics can return to moderate drinking with limited risk. Dr. Ernest Noble, director of NIAA stated: "Until further definite scientific evidence exists to the contrary, I feel that abstinence must continue as the appropriate goal in the treatment of alcoholism. Furthermore, it would be extremely unwise for a recovered alcoholic to even try to experiment with controlled drinking" (HEW News Release, June 23, 1976). In the two weeks following publication of the Rand Report, the National Council on Alcoholism (NCA) held two press conferences on the subject. At the first, the Rand Report was characterized as "dangerous and unscientific." Two weeks later NCA held a second press conference (NCA Press Release, July 1, 1976). The group labeled the report as "biased" and "dangerous" and questioned the method employed by Rand. The criticism related to sample bias, follow-up rates and validity of self reports.

In 1977, the Journal of Studies on Alcohol (JSA) published comments on the Rand Report by various researchers pointing out the numerous methodological flaws. Emrick and Stilson (1977) found flaws in the sampling procedure (the selection of 8 ATCs from 44, failure to locate 79% of the patients at the six month period, and 38% at the 18th month follow-up). Blume (1977) questioned the use of the term "normal drinking" used in the Rand Report. She elaborated on this point by stating that, "a man can average up to five 'shots' of whiskey a day and drink as many as nine on a typical day, have a variety of severe consequences from this drinking, and still be a 'normal drinker' as long as he does not report tremors."

Being aware of these problems, the Rand Report concluded that findings should not be the basis of policy until they could be tested with stronger data. The authors of this report also pointed out that only some alcoholics adopted normal drinking, and the data at hand could not distinguish those who could safely return to normal drinking from those who could not.

Orford (1978), in his editorial on the future of alcoholism ("A Commentary on the Rand Report"), stated that the greatest hope for the future of alcoholism is having more than one goal to offer, and of being able to advise people rationally on which goal would suit them best. He further suggested that the type of person who might be best advised to try and limit their drinking may be the person who at sometime in his or her life had established a fairly

normal pattern of limited drinking, who had experienced at the most, mild or irregular withdrawal symptoms, who continued to retain some degree of control over drinking sometimes, who had not established a strong affiliation with an abstinence-oriented organization or clinic, and who expressed a preference for limited drinking rather than abstaining.

Paredes, Gregory, Rundell and Williams (1979) tried to replicate the Rand study. They investigated the clinical course of patients from a network of 26 alcoholism treatment programs. Overall, rate of remission at the 6-month follow-up was considerably lower in their study (54 percent) than in Armor et al. (67 percent). Furthermore, the clients in their "normal drinker" category at the 6-month follow-up had the highest relapse rate of all remitted groups when assessed at the 18-month follow-up. The data of their study suggested that those alcoholics who chose to reduce their drinking as an option to abstinence experienced a substantial risk of relapse.

The second Rand Report (Polich, Armor & Braker, 1981) is based on a 4-year follow-up from admission to treatment through an 18th-month follow-up, to a 4-year follow-up. At four years, information was obtained from 85 percent of a sample of 922 male patients randomly drawn from eight Alcoholism Treatment Centers (ATCs) funded by NIAAA. This report drops the term "normal" drinking in favor of the more neutral term of "nonproblem" drinking. The definition of remission at four years eliminated

short-term abstention. The final definition of status at four years distinguishes between three major groups based on behavior in the past six months -- long-term abstainers for 6 months or more, non-problem drinkers, and problem drinkers who show signs of alcohol dependence, or serious adverse consequences in the past six months. The first two categories are treated as remission. Given this new definition, the second Rand study reported a remission rate of 46 percent at the 4 year follow-up, compared with 67 percent at 18 months. Remission includes 28 percent who are longer term abstainers, and 18 percent who are classified as non-problem drinkers. The relapse is defined as 1) a person experiencing problem drinking at the four-year follow-up, based on the new six months window; 2) a person experiencing any problem drinking between 18 months and the four-year follow-up; or 3) a person alive at 18 months who died of alcohol related causes by the time of the 4th year follow-up. According to this definition, the long-term abstainers at 18 months had the lowest rate of relapse (30 percent) compared to 41 percent relapse rate for non-problem drinkers. Short term abstainers had a relapse rate of 53 percent, the highest of the three improved groups at 18 months (Table 3).

The other pattern revealed in the second Rand Report was that for subjects who had a high level of alcohol dependence symptoms and who were older at admission, relapse rates were higher among non-problem drinkers than among abstainers. On the other hand,

TABLE 3
MEASURES OF RELAPSE AT FOUR-YEAR FOLLOW-UP

STATUS AT 18 MONTHS	RELAPSE AT 4 YEARS	
	AMONG SURVIVORS	ALCOHOL-RELATED DEATHS
Long-term abstainers	30%	1%
Short-term abstainers	53%	9%
Non-problem drinkers	41%	3%
Problem drinkers	73%	9%

Adapted from Polich et al. (1980a)

among subjects who had low levels of dependence and who were younger at admission, relapse rates were lower among non-problem drinkers than among abstainers. Interestingly, marital status plays a big role. Married men fare better with long-term abstinence than with non-problem drinking. Unmarried men do better with non-problem drinking than with abstention (See Table 4). The findings for low versus high level of alcohol dependence suggests the possibility of a threshold in the degree of alcohol dependence, beyond which the ability to return to non-problem drinking is substantially reduced. On the other hand attention

TABLE 4
PERCENTAGES OF LONG-TERM ABSTAINERS
AND NON-PROBLEM DRINKERS (AT 18 MONTHS)
RELAPSING AT 4 YEARS, BY AGE, DEPENDENCE SYMPTOMS
AND MARITAL STATUS AT ADMISSION

	AGE < 40		AGE 40 +	
	Long-Term Abstainers	Non-Problem Drinkers	Long-Term Abstainers	Non-Problem Drinkers
High Dependence Symptoms				
Married	7	17	4	50
Unmarried	16	7	10	28
Low Dependence Symptoms				
Married	16	7	11	28
Unmarried	32	3	22	13

Adapted from Polich et al. (1980a)

might be drawn to the younger, unmarried alcoholic, for whom non-problem drinking yields lower relapse rates than abstention. These data suggest that at lower levels of alcohol dependence or at earlier ages, non-problem drinking may represent a feasible mode of adjustment, whereas with increasing age or dependence, the

risks of non-problem drinking become proportionately greater.

The second report, like the first one, does not advocate a change in abstention policy. Nonetheless, the report strongly suggests an expansion of treatment approaches, including goals of other than the traditional goal of abstention.

There has been criticism of the second Rand Report, but the tone of the criticism is not as harsh. Nathan and Hay (1980) point out the following basic design limitations inherent in this study: (1) no contact control group was used; 2) the absence of multiple samples on all measures across the four-year follow-up period; and 3) discrepancies in the operational definition of dependent variables between 18 months and four-year studies making direct comparison between the two sets of data invalid. Pattison (1980) points to several methodological problems such as, sample bias, and definitional issues, the concept of "dependence on alcohol" and the definition of problem or non-problem drinking. Topper (1980) also points out the failure of the authors to define alcoholism and their lack of concern for the difference of cultural background in the members of the cohort. Also criticism is directed at generalizing the profile of patient treated at NIAAA to sample of alcoholics in general. In response to these charges, Polich et al. (1980b) agreed basically with the criticism, but defended their study stating that their sample was representative and their study valid despite some flaws. However, they stress

the need for further specific research into the question of how alcoholism develops, the factors that lead to treatment and the understanding of fundamental variables that distinguish the different types of alcoholism.

The second Rand Report (Polich et al., 1981) is an improved version over the first one (Armor et al., 1976). The design of the 4-year follow-up in the second report has a much larger set of variables for assessing alcoholic impairments. It has a longer 6-month and 4-year window within which to evaluate drinking behavior. It has a respectable response rate of 85% of the original sample for the 18-month study as compared to 62% in the first report, thus reducing the sample bias. The second report drops the controversial "normal" drinking in favor of a more neutral term of non-problem drinking. The definition of remission at four years also eliminates short-term abstinence. The 4-year follow-up data not only show relatively unfavorable prognosis for short-term abstainers, but also indicate serious problem drinking when short-term abstainers last drank. To overcome the objection to the heavy reliance on the self-reports of drinking behavior, validation interviews were conducted with collaterals and complimented with measurement of blood alcohol concentration. This way most of the methodological problems inherent in the first Rand Report were taken care of in the second report. Another feature of the second report was inclusion of the multivariate analysis of relapse. These analyses showed that

patterns of relapse were not uniform across different sub-groups of alcoholics. In particular, the differences between relapse rates for long-term abstainers and non-problem drinkers varied substantially according to subject's initial level of dependence, age and marital status. In spite of all these new features in the comprehensive second Rand Report, it does have certain limitations in terms of lack of an untreated control group, the absence of randomization, and the limited number of treatment process variables. Because of these limitations in the study design, the authors of the second Rand Report do not advocate a change in the abstention policy, though it strongly suggests an expansion of treatment approaches, including goal other than traditional abstinence.

ABSTINENCE VERSUS CONTROLLED DRINKING STUDIES

Factors Associated with Self Selected Treatment Goals of Abstinence Versus Controlled Drinking

Whether abstinence or controlled drinking is a more appropriate goal continues to be a matter of great debate. In this section discussion will focus on the factors associated with self selected treatment goals of abstinence versus controlled drinking. Orford, Oppenheimer and Edwards (1976) presented the results of a 2-year follow-up for a sample of 100 married male alcoholics who had been the subjects of an outpatient abstinence-oriented treatment. Fifty couples chosen (randomly) received only a single session of brief counseling. The remaining 50 couples were offered more intensive outpatient treatment. All the subjects were advised to abstain from alcohol and not to try and control their drinking. At the end of one year no difference was found in the outcome of two treatment groups. Complete 2-year follow-up data were obtained for only 65 men. Not all drinking reported at 2-years was uncontrolled. Of 26 men with a good outcome, 11 were abstaining and 10 were controlling their drinking. Most of the latter had not shown lengthy periods of abstinence prior to resuming drinking. Controlled drinkers reported fewer symptoms at intake, were more likely to have been sub-diagnosed as alpha alcoholics (psychological dependent) and

were more likely to have been briefly counseled. Abstainers reported more symptoms at intake. They were more likely to be sub-diagnosed as gamma alcoholics (physically dependent) and were more likely to have been intensely treated. These results suggest an interaction between degrees of dependence, type of treatment and goal of treatment.

Pachman, Foy and Van Erd (1978) examined possible pre-treatment differences between alcoholic veterans who chose abstinence and those who chose responsible drinking as their drinking goal. The collective data on the 61 patients, 12 of whom opted for a goal of controlled drinking, and 49 of whom chose abstinence, were compared on paper and pencil test measures, demographic measures and behavioral measures. The two groups of patients were found to differ significantly on three dimensions. The abstinence group reported that drinking had been a problem for a longer period of time (mean of 11.5 years) than did the controlled drinking group (mean of 6.5 years). The abstinence group had received less formal education than the controlled drinking group (mean of 10.8 years compared to a mean of 12.5 years). Finally, the patients who chose a goal of controlled drinking were more likely to predict that their chance of success at their respective drinking goal was 100 percent. These findings suggest that treatment efficacy can be increased by matching certain types of alcoholic patients with different treatment goals.

Kilpatrick, Roitzsch, Best, McAlhany, Sturgis and Miller (1978) investigated differences among alcoholics with respect to treatment goal (abstinence or controlled drinking) and motivation for treatment. Participants were 154 chronic male alcoholics (gamma type). On the basis of responses given in clinical interview regarding their preferences for a treatment goal, subjects were classified into an abstinence goal (n=97) or a controlled drinking goal (n=57). Each subject was then asked the question, "Do you think you have (or have had) a problem controlling your drinking of alcohol?" The chronic alcoholics presently hospitalized for alcohol detoxification who responded affirmatively to the question were operationally defined as being motivated for treatment since they admitted they were aware they had problems controlling their drinking behavior and had applied to the hospital for treatment. Those who responded negatively to the question about problem drinking were operationally defined as spurious treatment candidates since they denied any problem in controlling their alcohol consumption. Using this definition of motivation for treatment, 132 of the subjects were classified as motivated, and 22 subjects as spurious treatment candidates. Subjects were then classified into four groups:

- 1) Abstinence goal-motivated for treatment (n=86),
- 2) Abstinence goal - Spurious treatment candidates (n=11),
- 3) Controlled drinking goal - motivated for treatment (n=46), and
- 4) Controlled drinking - spurious treatment (n=11).

In addition to medical and behavioral evaluation, a detailed structured interview was conducted. A battery of psychometric tests were also administered to each subject. No difference on any variable was observed as a function of treatment goal, but spurious treatment candidates exhibited significantly less subjective emotional stress, had higher MMPI lie scale scores, and were more field dependent as well, suggesting that such alcoholics are not problem free and well adjusted. It is disturbing that such spurious clients who select controlled drinking as a goal may do so out of attempts to deny the severity of the drinking problems and to maintain the delusions that their drinking behavior is under control. The other conclusions drawn from this study were: 1) The assessment battery proved useful in providing information about motivation for treatment but not about treatment goals; and 2) The findings indicated that those who are unmotivated for treatment have similar characteristics whether they select abstinence or controlled drinking as a goal.

Perkins, Cox and Levy (1981) completed a survey of therapists' treatment goal recommendations. Of the 67 alcoholism treatment facilities asked to participate, 33 agreed. Eighteen 85-180 word case histories, some models on actual cases in literature, were modified or constructed for three levels of social class (low, middle, high), with three levels of history of controlled drinking (little, some, much) and two levels of sex. Respondents were asked

to read each of the 18 case histories and, using a seven-point scale, to recommend a treatment goal from "strongly recommended abstinence" to "strongly recommended controlled drinking."

Completed response forms were received from 22 agencies, yielding a total of 62 respondents, 24 of whom were female therapists. There was no main effect for, and there were no significant interactions involving, the sex of the therapist. There was also no main effect for the sex of the patient. The higher the patient's social class or the longer the patient's history of moderate drinking, the more likely the therapist was to recommend controlled drinking as a treatment goal. The treatment recommendations for female patients primarily reflected their social class whereas the recommendations for males were determined more by their pretreatment drinking behavior. The overwhelming endorsement of abstinence by therapists in the sample confirmed the fundamental role of abstinence in the treatment planning of alcoholism therapists. Only 17 of the 62 therapists in the sample, however, strongly recommended abstinence for all patients whereas 23 endorsed some degree of controlled drinking for some patients. These findings suggest that some therapists have begun to view controlled drinking as a treatment goal for some alcoholics.

Valliant and Milofsky (1982) studied 400 inner-city men from age 14 to 47. Of these men, 110 met research criteria for alcohol abuse; 49 of them achieved at least a year of abstinence. Stable abstinence was associated with severity of alcohol abuse. Abstinence was also associated with finding substitute dependence, new relations,

religion or Alcoholics Anonymous movements. Clinic treatment and good pre-morbid adjustment were not predictive of abstinence. Eighteen men were able to return successfully to problem-free drinking. Such men had previously manifested only a few symptoms of alcohol abuse.

Welte, Lyons and Sokolow (1983) followed up former clients of 17 alcoholism rehabilitation units of New York state. Their study showed that those clients drinking without symptoms at the first follow-up had higher relapse rates at the second than those who were abstaining at the first follow-up.

Gilligan, Norris and Yates (1983) compared the management of one house (W) whose aim was to teach moderate drinking to the clients to another the house (B) whose aim was long term abstinence. The results of their studies indicated that in day-to-day functioning, house (W) was subject to much worse disruptions, mostly as a result of a higher rate of illicit drinking. The number of drinking incidents per month and per residence was higher at house W, fewer residents completed the program, and only 38 percent remained long enough to commence training in controlled drinking.

Dupree and Schonfield (1984) in their gerontology alcohol project conducted a pilot research and treatment program designed to address the problem of late-life onset (age 55 or older) alcohol abuse. Of the initial 48 clients admitted to the pilot program, 24 dropped out and 24 graduated and participated in a one-year follow-up. Of 24 "graduates" from the program, 17 chose a goal of abstinence, and all

but three were able to maintain this throughout follow-up. Seven chose a goal of limited drinking, of which three maintained this goal. Overall success varied from 100% of the graduates at day of discharge to 74 percent at the 12 month follow-up.

Watson, Jacobs, Pucel, Tillerskjor and Hoodechek (1984) studied 100 men to determine the relationship between beliefs in the abstinence theory and outcome after treatment of alcoholism. Twenty-seven subjects reported believing that at least some alcoholics can tolerate a single drink without losing control or can learn to drink in moderation; and the remaining 73 rejected both contentions. The mean alcohol consumption ratings of the two groups over 10 evaluations covering the first 18 months after treatment did not differ. The Group X Time interaction effects which would have indicated a difference in the rates at which recidivism developed in the two groups, were also non-significant. Finally, the percentages of the two groups who were rated as abstinent, in complete control of their drinking or in control most of the time were compared at each of 10 follow-up points. Only a chance number of differences were significant. The results suggest that there is little relationship between belief in or rejection of the abstinence theory and recidivism.

Booth, Dale and Ansari (1984) administered six-week inpatient alcoholism treatment to 37 problem drinkers. Included in the treatment were educational groups and films, open discussion groups, individual counseling sessions, structured groups using behavior

self-control procedures, and information groups for patients' relatives. The patients leaving treatment with no measure of physical damage were classed as either controlled drinking choosers, or abstinence choosers, depending upon their goal choice. The third group of patients, who showed physical damage, were strongly advised to remain abstinent after discharge. Follow-up for 1-year produced no significant outcome differences between the controlled drinking choosers and abstinence choosers, with patients in each group most likely to achieve their goal choice. The worst outcome, measured on several indices, was shown by patients strongly advised to abstain. Booth et al. speculate that the prescribed abstinence group might have a poor outcome because of their high degree of dependency, their increased anxiety about physical deterioration (and correspondingly increased propensity to use drink as an anxiolytic), or their insensitivity to warning about physical damage.

A brief review of the above literature indicates that the factors which play a significant role in determining the suitability of a particular treatment goal of abstinence or controlled drinking are severity of drinking problem, education level, AA affiliation, history of previous success in controlled drinking and the belief system. The comparison between abstinence versus controlled drinking goals indicate that the factors associated with abstinence are longer periods of alcohol abuse resulting in more symptoms at intake. The patients in this category are chronic alcoholics intensely treated for their symptoms and usually diagnosed as gamma alcoholics. They are

usually men with less formal education having a strong affiliation with Alcoholics Anonymous. On the other hand, the factors associated with controlled drinking outcome are low severity of drinking symptoms at intake, non-association with Alcoholics Anonymous, more education, history of success in moderating their drinking in the past and self confidence. These subjects are problem drinkers and are usually subdiagnosed as alpha alcoholics.

Orford (1978) stated that the greatest hope for the future of alcoholism is that of having more than one goal to offer, and of being able to advise people which goal would suit them best. The above review offers hope and help to those drinkers whose problems have not progressed to the point where the only solution is total, life-long abstinence. Perhaps the persons in their early stage of drinking problems can be trained to control their drinking so as not to impair their personal, social and occupational functioning. However, the requirements for acceptance into the controlled drinking program needs to be based not only on the severity of the problem, but also on the other factors stated before.

Comparison of Abstinence and Controlled Drinking in a Randomized Experimental Design

The studies mentioned before do not have an appropriate control group. The abstinence and controlled drinking goals have not been explicitly included for comparison in any of the above-stated studies. There are only four such studies in the entire controlled

drinking literature which have attempted such direct comparison. Two of these studies were aimed at problem drinkers (Pomerleau, Pertschak, Adkins and Brady, 1978; Sanchez-Craiz, 1980) and the other two at chronic alcoholics (Foy, Nunn & Rychtarik, 1984, Sobell & Sobell, 1972b, 1973a). The first three studies used randomization in their experimental design while in the case of the Sobells' study, the staff made the decision regarding the choice of goal (abstinence or controlled drinking depending upon the suitability for the subject) and then subjects were randomly assigned to either experimental groups or control groups. The Sobells' study is also strongly associated with the controlled drinking controversy, so it will be discussed in the next section and the other three studies will be reviewed here.

Pomerleau, Pertschuk, Adkins and Brady (1978) compared behavioral and traditional treatment for middle income problem drinkers. Thirty-two patients were randomly assigned to one of two treatments: a multi-component positive reinforcement procedure emphasizing moderation, or a traditional denial-confrontation therapy emphasizing abstinence. There were no statistically significant differences in pre-treatment characteristics between the 18 behavioral and 14 traditional subjects. The median subject was 44 years old, had 16 years of education, was presently employed, had intact family relations and had not yet encountered serious health problems because of drinking. The median subject had a problem with alcohol for 8.5 years and had made two previous

attempts at therapy. In the behavioral treatment procedure a prepaid treatment fee was required on a sliding scale. A "Commitment" fee was also requested, which could be earned back by keeping records, coming to treatment with no detectable breath alcohol, carrying out selected non-drinking activities and attending follow-up. The subjects in traditional treatment were also charged a fee on a sliding scale, but no prepaid commitment fee was required; thus there was no monetary penalty for dropping out. The therapy was done on an outpatient basis in 90-minute sessions once a week for three months and in five additional sessions at increasing intervals over nine months.

The results of this indicated that of the 18 participants who entered therapy 16 completed the behavioral treatment and 8 (out of 14) the traditional treatment. Participants reduced their alcohol consumption significantly in both treatments. As compared to 603 ml. for behavioral versus 807 ml for traditional during baseline, the corresponding figures were 251 ml versus 189 ml at the end of treatment and 204 ml versus 151 ml at the first anniversary follow-up. In the case of those exposed to behavioral treatment, 66 percent reduced their drinking, 6 percent were abstinent, 11 percent were unimproved, and 17 percent dropout at the end of their first anniversary. For comparison, in the traditional treatment 36 percent had reduced their drinking, 14 percent were abstinent, 7 percent were unimproved and 43 percent had dropped out. These results indicate that 72 percent of the behavioral participants were

improved at the anniversary point with 17 percent dropping out, compared with 50 percent of the traditional participants improved and 43 percent dropping out. The authors speculate that use of a monetary penalty may have helped minimize the dropout in the behavioral procedure. They also point out that even though behavioral treatment seems to be more effective than traditional treatment, further replication and extensions will be of great value. Of special interest is whether the same results could be obtained with lower income participants.

Sanchez-Craig (1980) randomly assigned 70 socially stable problem drinkers to a goal of either abstinence or controlled drinking. The subjects were selected on the basis of the following criteria: average or above average intelligence, no evidence of physical pathology, non-participation in AA, non-subscription to the notion that alcoholism is a disease, 10 years or less of problem drinking, naivete' to treatment for alcoholism and no significant self-produced period of abstinence (six months or more in the past two years), maintenance of a job, home, or stable relationship and provision of two collaterals. The treatment procedure was a cognitive-behavioral intervention consisting of self-monitoring, function analysis, coping and problem solving strategy. Training in abstinence or in controlled drinking required approximately six weekly individual sessions of less than 90 minutes each. Treatment was identical in two conditions except in the description of the ultimate objective of treatment.

The data on drinking indices were collected for the first three weeks of treatment and are presented in Table 5.

TABLE 5
DRINKING INDICES OF SUBJECTS IN THE TWO
EXPERIMENTAL CONDITIONS (N=35 PER CONDITION)

	WEEK 1	WEEK 2	WEEK 3
Total number of drinks			
Abstinence	535	545	501
Controlled drinking	207	175	166
Number of Drinking Days			
Abstinence	95	94	89
Controlled drinking	42	38	39
Number of days of Heavy Drinking (> 6 drinks per day)			
Abstinence	38	33	30
Controlled drinking	10	5	5

Adapted from Sanchez-Craigh, 1980.

Analysis of drinking indices indicates that the abstinence group had more drinks on more days. The hypothesis that subjects in the abstinence condition drank more frequently was tested by categorizing the subjects as Abstinent, Infrequent drinker (< 4 drinking days in 3 weeks) or Frequent drinker (\geq 4 drinking days in 3 weeks). In an additional analysis, subjects were

categorized as Abstinent, Moderate Drinker (Mean drinks per occasion 1-6) or Heavy Drinker (Mean drinking per occasion > 6.1). This permitted a test of hypothesis that subjects in the abstinence condition tended to drink more on the days when drinking occurred. The results of these categories are presented in Table 6.

TABLE 6

NUMBER OF SUBJECTS IN EACH EXPERIMENTAL CONDITION
CATEGORIZED ACCORDING TO FREQUENCY OF DRINKING AND
QUANTITY OF DRINKING DURING THE FIRST 3 WEEKS OF
TREATMENT

	Abstinent	Infrequent (< 4 drinking days)	Frequent (≥ 4 drinking days)
Frequency of Drinking*			
Abstinance	9	6	20
Controlled	14	12	9
Drinking			
	Abstinent	Moderate (Mean ≤ 6 drinks)	Heavy (Mean ≥ 6.1 drinks)
Drinks per day**			
Abstinance	9	15	11
Controlled	14	20	1
Drinking			

* $p < 0.05$.

** $p < 0.01$.

Adapted from Sanchez-Craig, 1980.

Subjects in the abstinence condition drank on a greater number of days ($\chi^2 = 7.26$ $p < 0.05$) and drank more heavily when drinking occurred ($\chi^2 = 10.14$ $p < 0.01$).

The results of this study suggest that for a socially stable problem drinker, a moderate drinking goal is more conducive to appropriate drinking than is an abstinence goal, at least for the first three weeks of treatment. The high rate of rejection of abstinence as an ongoing goal suggests that this goal may be unrealistic for the population under study.

Sanchez-Craig and Annis (1982) completed the follow-up at six months for 59 of the initial 70 subjects. Drinking outcome over the six-months post-treatment discharge is presented in Table 7.

There are no significant differences between conditions in drinks consumed on drinking days, frequency of drinking, drinking style, percentage of abstinent, moderate, and heavy drinking, or typical beverage consumed. A one-way analysis of covariance, using weekly consumption and intake as covariates indicated that there was no significant difference between the groups in mean weekly consumption of alcohol at six months post-treatment. The Within Treatment, post-treatment discharge variables are given in Table 8.

Combining the results of tables 7 and 8 indicates that controlled drinking is a more appropriate goal for an early stage problem drinker despite the fact that there was no significant difference between groups in the amount of alcohol consumed at the six month follow-up. First, most subjects assigned to controlled

TABLE 7
DRINKING OUTCOME OVER SIX MONTHS (180 DAYS)
POST-TREATMENT DISCHARGE¹

VARIABLES	Abstinence Condition (N=30)	Controlled-Drinking Condition (N=29)
<u>DRINKING</u>		
-Drinks per drinking day (\bar{X} , SD)	3.7(2.4)	4.2(2.2)
-Frequency per week (\bar{X} , SD)	2.8(1.8)	3.1(2.2)
-Drinking Style (%)		
abstinent	6.7	3.4
moderate ($\bar{X} < 21.4$ drinks per week)	66.7	72.4
heavy ($\bar{X} > 21.5$ drinks per week)	26.7	24.1
-Drinking days ¹		
% abstinent days	62.6	55.2
% moderate days (< 5 drinks)	23.8	33.6
% heavy days (> 6 drinks)	13.6	11.2
-typical beverage (%)		
beer	53.6	57.1
wine	25.0	14.3
liquor	14.3	25.0
mixture of above	7.1	3.6

¹Since client self-monitoring records were felt to provide the most accurate account of drinks consumed, these records were used where available in preference to retrospective reports of drinking at the follow-up interview. Such drinking logs were available for 70% of the subjects for over half of the follow-up days. Supplementary analysis revealed a very high correlation ($r = 0.97$, $p < .001$) between self-monitoring and recall estimates of drinking days.

Adapted from Sanchez - Craig, & Annis, 1982.

TABLE 8
TREATMENT VARIABLES

VARIABLES	Abstinence Condition	Controlled Drinking Condition
<u>WITHIN TREATMENT</u>	N = 35	N = 35
-Number of Sessions (\bar{X} , SD)	5.7(2.0)	5.6(1.7)
-Number of Treatment Weeks (\bar{X} , SD)	7.6(3.5)	7.3(2.9)
-Drinks per Drinking Day (\bar{X} , SD)	4.8(2.6)	3.8(2.1)
-Frequency per Week (\bar{X} , SD)	2.4(2.2)	1.6(1.6)
-Drinking Style (%)*		
abstinent	20.0	11.4
moderate ($\bar{X} \leq 21.4$ drinks per week)	51.4	80.0
heavy ($\bar{X} \geq 21.5$ drinks per week)	28.6	8.6
-Client's Acceptance of Goal (%)***		
yes	34.3	85.7
no	65.7	14.3
-Completed Treatment (%)	94.0	97.0
<u>POST-TREATMENT DISCHARGE</u>		
-Aftercare by Therapist up to 6 months (%)**		
0 sessions	46.7	65.5
1 - 2 sessions	20.0	31.0
3 - 5 sessions	33.3	3.5
-Aftercare by other Professionals up to 6 months (%)		
0 contacts	86.6	89.7
1 - 2 contacts	6.7	3.4
3 or more contacts	6.7	6.9
-Self-rating of Helpfulness of Treatment at 6 months (5-point scale, \bar{X} , SD)	4.2(0.9)	4.1(0.9)

* $p < .05$

** $p < .02$

*** $p < .001$

Adapted from Sanchez - Craig & Annis, 1982.

drinking (85.7 percent) reacted favorably to goal of moderation whereas a large proportion of those assigned to abstinence (65.7 percent) rejected this goal from the outset. Second, compliance to this assigned drinking goal over the course of treatment was higher in the controlled drinking group. While 80% of the subjects in this group drank moderately, only 20% in the abstinence group abstained. Third, during the six month post-treatment discharge, a large proportion of the subjects in the abstinence group (66.7 percent) developed moderate drinking practices of their own; only 6.7 percent of subjects in this group maintained abstinence. An additional benefit was that the controlled drinking subjects required fewer contacts with the therapist after completion of therapy. The extent of non-compliance to abstinence strongly suggests that this goal is unacceptable to the population under study. It may be that the requirement of abstinence is especially aversive to early stage problem drinkers since typically they do not perceive themselves as "sick" or diseased.

Sanchez-Craig, Annis, Bornet and MacDonald (1984) followed these subjects over a two-year period. The follow-up rate was 73 percent at two years. No significant differences were found between the groups in reported alcohol consumption. For most outcome measures there was a uniform stability for both groups over the two-year follow-up.

Foy, Nunn, and Rychtarik (1984) evaluated drinking skills training for veterans who were chronic alcoholics by assigning 10

successive cohorts to trained or untrained conditions in a randomized block experiment design. All subjects received broad spectrum behavioral treatment consisting of alcohol education, group therapy, individual therapy, self-management training, job seeking and interpersonal skill training, drink refusal skills training, and relaxation training. Cohorts assigned to the controlled drinking skills condition received 15 hours of blood alcohol level discrimination training, responsible drinking skills training, and social drinking practice sessions. Six-month post-treatment follow-up revealed that subjects in the drinking skills conditions had significantly fewer abstinent days and more abusive drinking days than subjects in the untrained condition. Differences between groups were not significant in follow-up months 7-12, although the trend continued.

The results of these three studies in comparison of abstinence and controlled drinking in a randomized experiment design indicate controlled drinking is a more appropriate goal for problem drinkers. The typical person who benefits from controlled drinking has average or above average income and intelligence, a stable job, and an adequate social support system. The person in this category has not experienced serious health problems as a result of drinking and is classified as a problem drinker. From the studies of Pomerleau et al. (1978) it seems that in the traditional treatment, the therapeutic process had mixed effects helping those who were receptive to the treatment and driving out individuals who were

not, while in the behavioral treatment process the improvement was observed overall. In the Sanchez-Craig (1980) study, a three-week treatment follow-up indicated that the subjects assigned to the abstinence group drank significantly more frequently and consumed significantly more per occasion than did subjects in the controlled drinking group, but at the end of six months there were no significant differences between these two conditions and the same trend continued up to two years. The important implication of these observations is that the results obtained in the early course of treatment can be misleading and for that reason, longer follow-up is always desirable. The conclusion of this study reinforces the findings of Pomerleau et al. that controlled drinking is not only an appropriate but a desirable goal for problem drinkers.

While controlled drinking may be more of an appropriate goal for problem drinkers, in the case of chronic alcoholics, it is not. The study by Foy et al. (1984) indicated that subjects in the controlled drinking conditions had significantly fewer days and more abusive days than the subjects in an abstinence condition during the first six months post-treatment. The difference between the two groups was not significant in the subsequent follow-up. It indicated that training controlled drinking skills did not have any significant effect over abstinence in the long run, but during the initial stages it did have a negative effect on the subject's drinking management. Overall results of these three studies are

essentially consistent with an increasing amount of data suggesting that favorable controlled drinking outcomes are more frequently found in individuals with less severe drinking problems.

The Sobells' Study and Controlled Drinking Controversy

Seventy male gamma alcoholics voluntarily admitted to Patton State Hospital for treatment of alcoholism served as research subjects in the Sobell and Sobell (1972b, 1973a) study. Subjects were interviewed by the research staff and then assigned by staff decision to one of two treatment goals - non-drinking (abstinence) or controlled drinking. Thirty subjects were assigned to the non-drinking treatment goal group, and the remaining 40 subjects were assigned to the controlled drinking treatment goal group. Within each of these two groups, subjects were randomly assigned to either an experimental group receiving 17 individualized Behavior Therapy (IBT) sessions (consisting of video-tape replay of drunken behaviors, electric shock avoidance conditioning, stimulus control training, problem solving skills training and regulated drinking of alcohol) or a control group receiving only the conventional hospital treatment (large therapy groups, AA meetings, chemotherapy, physio-therapy and other services). In all, there were four experimental conditions: 1) Controlled Drinker Experiment (CD-E), N=20; 2) Controlled Drinker Control (CD-C), N=20; 3) Non-Drinker Experiment (ND-E), N=15; and 4) Non-drinker Control (ND-C), N=15. Daily drinking disposition was coded into five categories: (a) drunk days -

defined as any day during which 10 or more ounces of 86 proof liquor or its equivalent in alcohol content were consumed, or any sequence longer than two consecutive days when between 7 and 9 ounces were consumed on each day; (b) controlled drinking days, defined as any days during which 6 ounces or less of 86 proof liquor or its equivalent in alcohol content were consumed, or any isolated one or two day sequence when between 7 and 9 ounces were consumed each day; (c) abstinent days, defined as no ingestion of alcohol; (d) incarcerated days in jail resulting from an alcohol-related arrest; and (e) incarcerated days in a hospital because of alcohol-related health problems.

One-year treatment outcome results are reported in Table 9.

From the data presented in Table 9, it is clear that IBT subjects had functioned better than control subjects in both conditions. Comparison of data between controlled drinker experiment (CD-E) and controlled drinker control (CD-C) indicates that at the end of the first year follow-up, CD-E had spent 70.48 percentage of days functioning well and CD-C had only 35.22 (Functioning well = Daily drinking disposition of abstinent + controlled drinking). The CD-E were incarcerated a mean of 15.5 percentage (11.34 percent in hospital and 4.16 percent in jail) and CD-C, 14.9 percent (5.55 in hospital and 9.35 in jail). It is interesting to note that the majority of incarceration of experimental subjects was in the hospital while control subjects were predominantly in jails. According to Sobell and Sobell, this difference might have been

the result of voluntary hospitalization among the experimental subjects either to curb the start of a binge or to avoid starting drinking at all. The same trend followed for non-drinking subjects.

TABLE 9

MEAN PERCENTAGE OF DAYS SPENT IN DIFFERENT DRINKING DISPOSITIONS BY SUBJECTS IN FOUR EXPERIMENTAL GROUPS DISPLAYED SEPARATELY FOR THE FIRST 6 MONTH (183 Day) FOLLOW-UP INTERVAL AND FOR THE TOTAL 1st YEAR (366 DAY) FOLLOW-UP PERIOD.

Drinking Disposition	Experimental Condition			
	CD-E	CD-C	ND-E	ND-C
Follow-up Months 1-6				
Controlled Drinking	27.81	13.83	4.05	11.83
Abstinent, not incarcerated	40.55	24.77	66.15	22.32
Drunk	18.55	48.60	15.34	39.34
Incarcerated, alcohol- related: Hospital	11.15	3.57	10.27	9.45
Jail	1.94	9.23	4.19	17.06
TOTAL	100.00	100.00	100.00	100.00
Follow-up Year 1				
Controlled Drinking	25.19	9.56	3.33	6.13
Abstinent, not incarcerated	45.29	25.66	65.06	32.35
Drunk	14.02	49.88	13.99	39.85
Incarcerated, alcohol- related: Hospital	11.34	5.55	11.77	6.29
Jail	4.16	9.35	5.85	15.38
TOTAL	100.00	100.00	100.00	100.00

Adapted from Sobell & Sobell, 1973b

The results of the second year follow-up (Sobell & Sobell, 1976) also indicated that subjects treated with controlled drinking functioned better than their respective control subjects. However, the difference between IBT subjects treated with non-drinking goals and their control subject did not retain statistical significance.

TABLE 10

MEAN PERCENTAGE OF DAYS SPENT IN DIFFERENT DRINKING DISPOSITIONS BY SUBJECTS IN EACH EXPERIMENTAL GROUP OVER THE ENTIRE SECOND YEAR. (MOS. 13-24) OF FOLLOW-UP.

DRINKING DISPOSTION	Experimental Condition			
	CD-E	CD-C	ND-E	ND-C
Follow-up Year 2				
Controlled Drinking	22.57	5.81	3.65	1.56
Abstinent, not incarcerated	62.60	63.46	60.50	41.67
Drunk	12.27	49.25	20.37	37.47
Incarcerated, alcohol-related: Hospital	1.58	2.49	6.13	8.82
Jail	0.98	5.99	9.35	10.48
TOTAL	100.00	100.00	100.00	100.00

Adapted from Sobell & Sobell, 1976

As the data from Table 10 indicate, 20 CD-E subjects functioned well for a mean of 85.17 percent of all days, compared to 19 CD-C subjects who functioned well for a mean of 42.27 percent of days

during the same interval. This difference is statistically significant ($t_{37} = + 4.73$, $p < 0.001$). During the same interval, the 14 living ND-E subjects functioned well for a mean of 64.15 percent of all days, as compared to 14 living ND-C subjects who functioned well for a mean of 43.23 percent of all days. This difference is not significant ($t_{26} = + 1.55$ $0.10 < p < 0.05$). From the results of this study, it might appear that the treatment goal of controlled drinking contributed more to successful outcome than did the method of Individualized Behavior Therapy (IBT). However, Sobell and Sobell (1976) remind us that subjects were selectively assigned to drinking treatment goals, although assignment to experimental or control groups within each goal condition was randomly determined. Thus, subject variables, rather than treatment or goal variables, may account for the lack of continued significant differences between ND-E and ND-C subjects.

Caddy, Addington and Perkins (1978) conducted an independent third-year follow-up. The daily drinking disposition calculated for each of 49 subjects who were interviewed over the entire third-year follow-up is given in Table 11.

TABLE 11
MEAN PERCENTAGE OF DAYS SPENT IN
DIFFERENT DRINKING DISPOSITIONS BY
SUBJECTS IN EACH EXPERIMENTAL CONDITION
OVER THE ENTIRE THIRD-YEAR FOLLOW-UP PERIOD

DRINKING DISPOSITION	Experimental Condition			
	CD-E	CD-C	ND-E	ND-C
Controlled Drinking	28.77	34.85	5.11	14.45
Abstinent, not incarcerated	66.07	40.07	76.33	52.46
Drunk	5.15	25.29	18.55	32.55
Incarcerated (Hospital, Prison or Jail)	0.01	5.00	6.02	11.57
TOTAL	100.00	100.00	100.00	100.00

Adapted from Caddy et al. (1978)

The mean percentage functioning well calculated on 13 of these CD-E subjects was 94.85 percent and corresponding figures for 14 CD-C was 74.93 percent. This is significant ($t_{25} = -2.25$, $p = 0.03$). The mean percentage of functioning well calculated for 9 ND-E are 81.44, the corresponding figure for 11 ND-C is 66.91 percent. This is not significant ($t_{18} = 1.05$; $p = 0.31$).

In the Sobell and Sobell second-year follow-up (1976), the mean percentage days functioning well reported for CD-E, CD-C, ND-E, and ND-C groups were 85.17, 42.27, 64.15 and 43.23 percent. The corresponding figures for the third-year follow-up are

94.85, 74.93, 81.44 and 66.91 percent respectively. Thus, all four groups in the third year showed a greater percentage of days functioning well than was reported in the second-year follow-up. Caddy et al. remarked that it is impossible to determine whether this trend represents a true improvement with time or is simply the consequence of sampling bias. It is interesting to note that the control group increased in the number of controlled drinking days (in CD-C) during the third year, and that the experimental group was doing better then because of greater abstinence. Another puzzling finding is why subjects trained especially to drink in a controlled way abstain on significantly more days than those who are treated in an abstinence-oriented program.

Overall, the results of the Sobells' studies indicate that alcoholic inpatients who received individualized behavior therapy (IBT) in the controlled drinker experiment (CD-E) condition showed improvement in percentage of days functioning well compared to patients in the control group (CD-C); however, no such significant difference was found between Non-drinker Experiment (ND-E) and Non-Drinker Control (ND-C).

A close scrutiny of the Sobells' study indicates serious flaws, some of which have been acknowledged by them in their research reports. The following problems pertain to the design and methodological issues.

1. Non-Random Assignment of Subjects

The subjects were selectively assigned to drinking treatment goals, although assignment to the experimental or control group within each goal condition was randomly determined. The subjects assigned to the controlled drinking goal had already seen available significant social support and had successfully practiced social drinking at some time in the past. The improvement in the experimental condition may be due to this factor rather than to specific behavioral treatments.

2. Criteria Used for Controlled Drinking

The criteria used to distinguish controlled drinking days from drunk days were derived from data collected on actual social drinkers who had participated in baseline drinking behavior studies. The baseline data, however, were obtained from single drinking sessions. Sobell & Sobell (1973a) remarked that if a longitudinal baseline study were conducted, normal drinking patterns would probably be found to consist of a major proportion of abstinent days, a certain proportion of controlled drinking days and a small proportion of drunk days.

3. Follow-up

During the first-year and second-year follow-up, the interviewer was not "blind" regarding the goals of each subject. It is possible that this study incorporated

some interview reactivity as a result of a single interviewer (Linda Sobell) using frequent follow-up contact. This could have created a) interviewer bias (Rosenthal effect), and b) subtle demand characteristics, that would have affected the results of this study. Caddy et al. (1978) who did the third year independent follow-up also raised this issue in discussing the discrepancy between their results and those of Sobell and Sobell (1973b, 1976).

4. Use of Self-Reports

The Sobells collected data on patients through self reports and other collaterals. There is no mention how much the discrepancy was between the two sets of data (reliability data) and how that was resolved.

5. Contamination of Groups

The Sobells acknowledge that while the treatment goal of controlled drinking was specifically intended for use only with certain patients, it was inevitable that other alcoholic patients in the hospital, including control subjects, were fully aware that controlled drinking was experimentally investigated as a potentially attainable treatment outcome. Therefore, it is conceivable that some subjects other than those in the controlled drinking experiment condition may have attempted controlled drinking thereby contaminating the results of the study.

6. Generalization

The results of the Sobells' study suggest that controlled drinking can now be appropriately considered as alternative treatment goals to abstinence for some alcoholics. However, for what type of alcoholics the controlled drinking will be suitable is not stated. Also, it is difficult to generalize from a small sample of 20 experimentally treated subjects. Sobell and Sobell (1976) themselves point out that unless outcome data are gathered for a large proportion of subjects in a given study, the results might be biased in a positive direction. Further, Sobell and Sobell also state that the foundation of validating successful treatment lies in replication (1973b). Further studies are needed to determine what kind of treatment services are most appropriate for different individuals.

In spite of all the shortcomings, the Sobells' findings have been published in a series of articles and books and are widely quoted among behavioral and social scientists interested in controlled drinking treatment.

The Sobells' findings went unchallenged for almost 10-years until Pendery, Maltzman and West (1982), in their 10-year follow-up of the Sobells' 20 experimental controlled drinkers found a far more disappointing clinical outcome. Their follow-up indicated that most subjects trained to do controlled drinking failed to drink

"safely." The majority were rehospitalized for alcoholism treatment within a year after their discharge from the research project. Only one of them, who had apparently not been a gamma-type drinker, achieved being a controlled drinker. Eight patients continued to drink excessively - regularly or intermittently despite repeated damaging consequences. Six chose to live as abstainers and stopped their efforts of controlled drinking. Four died from alcohol-related causes. One who was unavailable to the follow-up study had been documented as being "gravely disabled because of drinking" (Pendery et al., 1982).

In their first-year follow-up, Sobell and Sobell (1973b) noted that the majority of incarcerated experimental subjects were in the hospital, while control subjects were in jail, and that the difference might have been the result of voluntary hospitalization among experimental subjects either to curb the start of a binge, or to avoid starting to drink at all. The findings of Pendery et al. show that the rehospitalizations were not isolated setbacks in persons with otherwise benign controlled drinking outcomes. Rather, they indicated the pattern of serious problems that characterized the continued attempts of these subjects to practice social drinking. Pendery's et al. final conclusion based on evidence including official records and new interviews, was that gamma alcoholics had not acquired the ability to engage in controlled drinking safely after being treated in the experimental program. One thing worth emphasizing here is that Pendery et al. gave an account of only controlled

drinking experimental groups, although they studied subjects from both experimental and control groups.

There was a sensational reaction to these new findings in the news media. Dr. Maltzman, one of the authors of Pendery's et al. (1982) article was quoted in The New York Times as saying, "Beyond any reasonable doubt, it's fraud" (Boffey, 1982, p. A12). Dr. West, another co-author of the Pendery et al. (1982) article, remarked that discrepancies between the initial reports and their follow-ups cast grave doubts on the scientific integrity of the original research. In view of the gravity of these charges against the Sobells, an independent investigation was conducted by a fair member committee. They submitted their 123-page report in late October, 1982, in which they stated, "The committee finds there to be no reasonable cause to doubt the scientific or personal integrity of either Dr. Mark Sobell or Dr. Linda Sobell" (Dickens, Doob, Warwick & Winegard, 1982, p. 109). After the publication of the "Dickens Report," the CBS "60 Minutes" television program featured a segment on March 6, 1983 (Wasserman, 1983) that was extremely critical of the Sobells' controlled drinking study. In that program a number of ex-patients of the Sobells' study described their drinking during the follow-up period as completely different from that reported in the Sobells' published reports (1973a, 1973b & 1976). They denounced the Sobells' findings as lies. The Sobells declined to be interviewed on that program. However, in response to the Pendery et al. (1982) allegations, Sobell and Sobell (1984)

gave a point-by-point response and defended their study. In their response it was shown that the experimental and control subjects were justifiably classified as gamma alcoholics, that subjects were randomly assigned to groups, and that the two groups were comparable in terms of pre-treatment characteristics (most of the serious charges against the Sobells were contained in an unpublished manuscript by Pendery et al., 1982).

The controlled drinking controversy started with Davies (1962) article, resurfaced with the publication of Rand Report (1976), and flared up again after publication of the Pendery et al. (1982) re-evaluation of the Sobells' study. The media played a big role in sensationalizing the last two studies. In spite of all the shortcomings of the Rand Report and the Sobells' study, they still remain some of the best systematic scientific studies reported on controlled drinking. Pendery et al. (1982) implies that participation in the controlled drinking program resulted in the long-term relapse rate of the patients (in the experimental controlled drinker program), though all the 13 patients about whom reference is being made received abstinence-oriented treatment during re-hospitalization within the first year of the discharge from the experiment. How then can the long-range negative outcome reported for the 10-year period be attributed solely to the failure of the controlled drinking procedure? By the same token, better functioning well of the controlled drinker experimental group during the third year (Table 11) cannot be solely attributed to controlled drinking treatment especially

when it is the control group that increases the number of controlled drinking days in the third year, and the experimental group was doing better then because of abstinence.

During the follow-ups, self reports were collected by Dr. Linda Sobell and Dr. Mary Pendery for their respective studies. It is quite possible that demand characteristics may have contaminated the results. The omission of outcome data for the control group is a crucial flaw in the Pendery et al. (1982) report, since the outcome can only properly be interpreted by comparing their progress with the abstinence-oriented control group. Nonetheless, one cannot set aside easily the negative outcome of 13 experimentally controlled drinkers as reported by Pendery et al. (1982). From their report it appears that the controlled drinking treatment in the Sobells' study did not work. Ultimately, it is unreasonable to base any treatment program on the results of one study. Sobell and Sobell (1973b) themselves have stated that the foundation of validating successful treatment lies in replication.

The influence of post-treatment factors on the recovery process (e.g., exposure to other treatment programs, stressful life events, acquisition of new coping responses, social support) may exert a greater influence in terms of long-term outcome than exposure to the components of any single treatment program (Cronkite & Moos, 1980). Assessment of the impact of post-treatment factors must be taken into account in the evaluation of treatment

outcome in order to avoid serious errors of interpretation and misattribution of any causative elements in the recovery process.

Marlatt (1983), in his comments on the controlled drinking controversy referred to controlled drinking both to the use of specific skills and techniques designed to teach the individual how to exercise "control" over drinking and to a level of drinking that is considered non-problematic. Marlatt traces the history of controlled drinking with the Davies Report (1962), and continues with the behavioral approach to controlled drinking and finally concludes by stating that "The work of the Sobells will stand as an early landmark on the empirical road ahead." (p. 1109) The commentary provoked anguish from McCrady (1985) who questioned why training alcoholics in controlled drinking is so attractive, especially when the bulk of evidence during the last 10 years demonstrates that moderating drinking is a rare phenomenon among alcohol-dependent individuals. McCrady has accurately identified that part of the controlled drinking controversy has to do with different theoretical perspectives on alcoholism, but part of it has to do also with the issue of territoriality. Most of the medical community and traditional alcoholism treatment centers follow strictly the disease concept of alcoholism and abstinence, while on the other hand, most of the behavioral scientists lean exclusively toward the social learning approach and controlled drinking. Wallace (1985), pointing out to the genetic factors

into the etiology of alcoholism emphasizes that alcoholics have tried to control their drinking before coming to the treatment and they report what appears to be universal failure. Marlatt (1985) responded to the criticism by stating that genetic and other biological factors may increase the risk of dependency upon alcohol, but there is as yet no firm evidence in support of a direct causative link. Psychological and environmental factors clearly play significant roles in the development of addictive drinking. Marlatt (1983) raises important issues in his commentary on controlled drinking. What types of individual responds best to an abstinence treatment goal compared to a goal of controlled drinking? Is it possible to match clients to a treatment goal that best fits their abilities and beliefs? What is the optimum role of a moderation approach to the prevention of problem drinking? Can these approaches be applied successfully to such recalcitrant populations as drunk drivers or to chronic alcoholics who repeatedly reject abstinence?

The issue of controlled drinking versus abstinence is hardly resolved. The current controversy, unfortunately, could prevent the development of potentially effective controlled drinking treatments. What is needed at this point is an effective and thorough evaluation of a variety of alcohol treatment programs used with a variety of problem drinkers and alcoholics. Only in this way can treatment of alcohol addiction and evaluation of behavior change programs be advanced.

ADVANTAGES OF CONTROLLED DRINKING

Many alcoholics continue to deny that drinking is a problem and they are reluctant to face a life of permanent abstinence (Reinert & Bowen, 1968). Abstinence treatment goals deter many alcoholics from seeking treatment (Drewery, 1974). The total goal of abstinence is successful with only a fraction of alcoholic individuals, perhaps less than 20 percent (National Institute on Mental Health Alcohol and Alcoholism, 1969). There are approximately 10 million alcoholics and many are unwilling to seek a goal of abstinence or attend Alcoholics Anonymous (AA). Among those who attend AA, many of them are unwilling to abide by AA principles and thus are not helped. This is particularly true for persons under the age of 30, for this section of the population abstinence is most unsatisfactory as a goal. Polich, Armor and Braiker (1980a) showed that abstinence was much more likely to lead to relapse in young, single males. Their results suggest that controlled drinking may be a more appropriate goal than abstinence for individuals under 40 who are not severely dependent upon alcohol. If controlled drinking is included as a treatment goal available to the problem drinker, many would be persuaded to attend to treatment earlier in the course of their problem when their drinking was still more amenable to change (Bigelow, Cohen, Liebson & Faillace, 1972).

There is some evidence that the abstinent alcoholic may be subject to periodic episodes of fatigue and depression (Flaherty, McGuire & Gatski, 1955; Wellman, 1955) and that enforced abstinence may have disastrous results for the personality organization of some individuals (Wallerstein, 1956). There is only a low correlation between the attainment of abstinence and overall improvement in life functioning (Pattison, 1976a, 1976b; Wilby & Jones, 1962). There are grounds for speculating that abstinence, per se, may introduce problems of a psychological or sociopsychological nature which makes relapse more likely (Marlatt, 1978; Richard & Burly, 1978). Drewery (1974) suggests that alcoholics will be deterred from entering treatment until their problem has reached a serious stage requiring total abstinence and that introduction of controlled drinking treatments for some alcoholics might improve the situation (Brown, 1982).

Pattison (1976a), in discussing non-abstinence drinking goals in the treatment of alcoholism, points out problems in maintaining abstinence criteria. He summarizes these treatment concerns as follows: Abstinence sets up a rehabilitation goal that may be difficult or impossible for many alcoholics to attain; abstinence may be inappropriate as a goal for patients with moderate or minimal degrees of alcoholism problems; the requirement of abstinence may lead alcoholics to avoid, refuse or fail to participate fully in treatment; a requirement of abstinence often leads to punishment or rejection of the alcoholic who is not abstinent; the

goal of abstinence often obscures the real improvement that an alcoholic may attain in modifying his drinking behavior; the abstinent alcoholic may experience continuing dysfunctional anxiety about his vulnerability to alcohol; other treatment goals are obscured that are critical to recovery, such as social, emotional, vocational and interpersonal rehabilitations; the goal of abstinence places all the responsibility on the alcoholic, thereby condemning him if he fails; the goal of abstinence does not help the alcoholic work at the other goals beyond abstinence; and the requirement of abstinence obstructs the development of other treatment methods and goals that are non-abstinent.

An analysis of the comments by Pattison and others indicates that they are mainly aimed at criticism of abstinence criteria rather than focusing on the advantages of controlled drinking. But some of the studies cited in this research report do provide evidence of the advantages of controlled drinking treatment goal for selected population. A review of literature on controlled drinking reveals that it is an appropriate goal for problem drinkers with few symptoms (Miller et al., 1979; Orford, 1973; 1976; Vogler et al., 1977). The comparison of abstinence and controlled drinking in a randomized experiment design indicates clearly that controlled drinking is not only an appropriate but a desirable goal for problem drinkers with a stable job, average or above average intelligence and adequate social support system (Pomerleau et al. 1978, Sanchez-Craig, 1980). However, these findings cannot be

generalized beyond the selected population. One needs to use caution in recommending controlled drinking not only for all but even for most problem drinkers. This treatment modality should be used by those who are aware of the methodology, benefits and limitations. The controlled drinking has been criticized on many grounds. This criticism is addressed in the following section.

CRITICISM OF CONTROLLED DRINKING

The first and foremost criticism of controlled drinking relates to issues of definition. In many reports, the terms normal drinking, moderate drinking, social drinking and controlled drinking have been used interchangeably. Blume (1977) criticized the Rand Report (Armor, Polich & Stambul, 1976) for using the term "normal drinking" to describe the group of patients who greatly decreased their alcohol intake at the time of follow-up. Blume would have no objection if authors had chosen the term "improved," "much improved" or "reduced drinking." In response to this criticism, the second Rand Report (Polich, Armor & Braiker, 1981) drops the controversial term "normal drinking" in favor of more neutral terminology, "non-problem drinking." Sobell and Sobell (1973b) defined controlled drinking as days during which 6 ounces or less of 86 proof liquor or its equivalent in alcohol content were consumed, or any isolated one or two day sequence when between 7 and 9 ounces were consumed each day. Using these criteria 20 experimental controlled drinking subjects were reported as functioning well for a mean 70.48 percent of all days. Ewing and Rouse (1976) point out that these figures say nothing about the complications experienced when the patient is not "functioning well." Even a brief drinking binge can lead to health complications, interpersonal problems, loss of job, arrest for driving under the

influence, and similar complications. All these things actually happened to most of the Sobells' experimental controlled drinking subjects according to Pendery, Maltzman and West (1982).

In addition to the problems in defining controlled drinking, there have been serious design and methodological problems in controlled drinking studies. Of a dozen and a half studies cited in controlled drinking studies section, only one (Brown, 1980) used adequate control groups, and only Volger et al. (1975, 1977) used a blind follow-up in their studies. To compare the efficacy of abstinence with controlled drinking, appropriate control needs to be included for comparison. Only a small number of studies have explicitly included such control in their research. The only studies which have explicitly compared the goals of abstinence and controlled drinking are Pomerleau, Pertschuk, Adkins and Brady (1978) and Sanchez-Craig (1980) for problem drinkers, and Foy, Nunn, and Rychtarik (1984), and Sobell and Sobell (1972b, 1973a) for chronic alcoholics. Evidence from the first two studies indicate the appropriateness of controlled drinking goals for middle-class problem drinkers, who have less symptoms at intake, a stable job, and an adequate social support system. But that is a very selective population; their studies cannot be generalized beyond that. For the treatment of chronic alcoholics, findings of Foy et al. (1984) do not indicate any suitability of controlled drinking goals for that population. As far as the Sobells' study is concerned, their findings are limited because of design and methodological problems

and controversy surrounding their study. The Sobells' study had been challenged by Ewing and Rouse (1976) who found that their own success in teaching alcoholics to return to controlled drinking had vanished four years later. The Sobells' findings were also challenged by Pendery et al. (1982) who, in a painstaking 10-year follow-up of the Sobells' 20 experimental cases, found a far more disappointing outcome.

One frequent criticism of the controlled drinking approach is that many chronic alcoholics will not acknowledge the seriousness of their drinking problem under the pretext of controlled drinking and will eventually relapse. Kilpatrick, Roitzsch, Best, McAlhany, Sturgis and Miller (1978) refer to these subjects as spurious treatment candidates. Glatt (1967) observed in his research that a small minority of gamma alcoholics are apparently able to return to moderate drinking for a short period only, but eventually all of them relapse. (p. 272)

In a majority of the controlled drinking experimental research, alcoholics have been trained to drink in a moderate fashion in a controlled laboratory setting. However, once they return to the stressful situations and unfavorable host of the real world many begin to drink uncontrollably and eventually relapse. Additionally, there are practical problems involved when transforming the new behaviors learned in the laboratory to the natural environment. Since the contingencies operating in the two settings are usually

quite different, the controlled drinking findings may have different implications for treatment application than for research studies.

Marlatt (1983) has raised a number of thought-provoking questions concerning controlled drinking. What type of individual responds best to an abstinence treatment goal compared to the goal of a controlled drinking? Is it possible to match clients to a treatment goal that best fits their abilities and beliefs? What is the optimum role of the moderation approach to the prevention of problem drinking? So far, only a few of the studies on controlled drinking during the last 15 years have been able to respond to these relevant questions. Another practical problem involved with controlled drinking goal is that there is no alcoholism center in the United States using this as an official policy, although there are some private practitioners using it on an ad hoc basis (Fisher, 1982). It is worth noting the observation of Sobell and Sobell (1976) that legitimizing alternatives to abstinence as viable treatment objectives for some alcoholics does not imply that this is appropriate for all or even most alcoholics. Similarly, it should be recognized that not all or even most persons currently working in the alcoholism treatment field are presently skilled to pursue alternatives to abstinence with clients. As with any kind of therapeutic procedure, this treatment modality should only be used by trained individuals, aware of the methodology, benefits, dangers and limitations in such an approach.

SUMMARY, IMPLICATIONS AND CONCLUSIONS

Abstinence used to be the only recommended goal for persons affected with alcohol abuse. In recent years there has been a trend to suggest controlled drinking for some alcohol abusers. The DSMIII maintains a clear distinction between alcohol abuse and alcohol dependence; the later category has signs of tolerance or withdrawal. Jellinek (1960) described four types of alcoholism as Alpha, Beta, Gamma and Delta. Alpha alcoholism represents a purely psychological, continual dependence and is generally associated with problem drinkers with a short history of alcohol abuse. Gamma alcoholism is associated with a loss of control phenomenon, physical dependence and a disease concept of alcoholism in chronic alcoholics. The traditional medical model emphasize disease concept of alcoholism, abstinence and participation in Alcoholics Anonymous.

In contrast to the traditional medical model, the behavior modification approach for alcoholics focuses on control over drinking patterns and situations, the consequences of drinking, the frequency of drinking and the amount of drinks consumed. The various programs usually involve an attempt to analyze the person's drinking patterns and the antecedents and consequences of that drinking. The standard techniques used are blood alcohol discrimination, reinforcement contingencies, discriminated oversive

control, videotape self-confrontation, self-monitoring and alcohol education. Controlled drinking is one of the goal options considered in the treatment process.

Davies (1962) was the first one to challenge the traditional emphasis on total abstinence as the only viable cure for alcoholism by reporting that 7 of his 93 former alcoholic patients were found on follow-up to have been drinking socially from 7 to 11 years after discharge from the hospital. After publication of Davies' article, many other instances of normal drinking in former alcoholics were reported. Reinert and Bowen (1968) introduced the term "controlled drinking" to describe an observed outcome of alcohol treatment in which the patient manages to resume moderate drinking by observing rules of self-control.

The first attempt to evaluate systematically the effectiveness of controlled drinking began with the work of Australian psychologists Lovbond and Caddy (1970). After treatment, through discriminated aversive control, the authors claimed a 67 percent success rate for the experimental group. Other studies on controlled drinking applied techniques like videotape self-confrontation, reinforcement contingencies, behavior counseling, self-recording and alcohol education. One cannot draw any specific conclusions regarding whether one technique works better than others. The controlled drinking treatment has successfully been applied to chronic as well as problem drinkers, but it has achieved better results with problem drinkers with less severe

symptoms at intake. Controlled drinking subjects have been able to control their drinking during treatment, but their control erodes over time. Most of the studies on controlled drinking lack appropriate control and independent follow-up, thus reducing the validity of the reported outcome.

The Rand Report (Armor et al., 1976) suggests that after treatment some alcoholics return to normal drinking with no greater likelihood of relapse than alcoholics who choose permanent abstinence. However, this report was criticized for lack of acceptable response rate, faulty research design and lack of adequate control. The second Rand Report is based on a four-year follow-up in comparison to only 18 months of follow-up in the first report. This report drops the word "normal drinking" in favor of a more natural term, "non-problem drinking." Abstinence and non-problem drinking is considered as remission in their studies. The second Rand Report reported a remission of 46 percent at the four-year follow-up compared with 67 percent at 18 months. The other pattern revealed in the second Rand Report was that for older persons, long-term abstinence had a better prognosis than did non-problem drinking, but the situation reverses for younger men with lower dependence. Unmarried men do better with non-problem drinking and married men with long term abstinence. This suggests that at lower levels of alcohol dependence, or at earlier ages, non-problem drinking may represent a feasible mode of adjustment, whereas with increasing age or dependence the risks of non-problem drinking becomes proportionately

greater. The second report, like the first one, does not advocate a change in abstention as a treatment policy, nonetheless, the report strongly suggests an expansion of treatment approaches including goals other than the traditional goal of abstinence.

The comparison of abstinence versus controlled drinking indicates that controlled drinking goals have proven to be successful in limited attempts with problem drinkers having middle income, average or above average intelligence, stable jobs and adequate social support systems. The typical individual likely to benefit from controlled drinking is younger, non-addicted, and has fewer life problems related to alcohol. This suggests that these type of individuals can be trained to control their drinking in their early stage of a drinking problem.

A review of the literature on controlled drinking indicates that efforts to train chronic alcoholics (Gamma type) has proven to be futile in the long run. Severely dependent alcoholics have been trained in some instances to control their drinking in a laboratory environment, but their control erodes over time. One such successful attempt to train gamma type alcoholics to drink in a controlled fashion was reported by Sobell and Sobell (1973a, 1973b, 1976 & 1978). At the end of the second-year follow-up, they indicate that their experimental controlled drinkers were functioning well for a mean 85.17 percent of all days. These figures say nothing about complications experienced when the person is not "functioning well." Even a brief drinking binge can lead to health complications.

All of these things actually happened to most of the Sobells' experimental controlled drinkers, according to Pendery, Maltzman and West (1982). The validity of the Sobells' work has also been challenged by Ewing and Rouse (1976) who found that their own early success in teaching alcoholics to return to controlled drinking proved four years later to have been evanescent. The Sobells' findings have also been challenged by Pendery et al. (1982) who, in a 10-year followup of the Sobells' 20 experimental controlled drinking cases, found a far more disappointing clinical outcome. Perhaps it is not surprising that the lives of experimentally treated alcoholics would look very different in a 10-year study by critical outsiders than they did over two years to investigators intimately involved in the alcoholic's treatment. If we are to resolve our confusion about alcoholism, objectivity and longitudinal studies are essential.

The influence of post-treatment factors on the recovery process may exert a greater influence in terms of long term outcome than exposure to components of any single treatment. Assessment of the impact of post-treatment factors must be taken into account in evaluation of treatment outcomes in order to avoid serious errors of interpretation and misattribution of causative elements in the recovery process.

The major problem with the controlled drinking studies is that they are based on restricted sample of patients under sheltered laboratory conditions. Therefore, the findings may have different

implications for treatment application than for research studies. Since the contingencies operating in the treatment setting are not the same as those in the real world, it seems that the controlled drinking treatment goal suffers in the long run due to the lack of reinforcers. Therefore, the therapist would need to work with significant others who provide reinforcers. Agreement to arrange support in the desired appropriate drinking behavior might be made as one of the requirements for acceptance into a controlled drinking program.

Part of the controlled drinking controversy has to do with different theoretical perspectives on alcoholism, but part has to do with the issue of territoriality. Most of the medical community and traditional alcoholism treatment centers follow strictly the disease concept of alcoholism and goal of abstinence, while on the other hand most of the behavior scientists lean exclusively toward the social learning approach and controlled drinking. Both social learning and disease concept advocates are arguing from extreme positions. If we take a comprehensive approach that recognizes the existence of psychosocial forces as well as biomedical ones (these forces may provide a predisposition in some and protective factors in others) we can have a better understanding of the individual problem. Behavior therapy is based on the concept that undesirable behavior is learned and, therefore, can be unlearned. Thus it seems reasonable to speculate that such therapy will be most successful with subjects whose alcoholism stems largely from

psychosocial rather than biological forces. Likewise, for those who carry a significant biological predisposition to problems with alcohol, are least likely to respond to behavioral approaches such as controlled drinking.

Alcoholism is a complex set of disorders manifested by abusive drinking. It can be a result of cultural dependency, physical addiction and psychological dependency on the agent. By the time a person comes to seek help, he has some or all of these dependencies at work. Thus there is a need for better differential diagnosis and assessment of severity of dependence, so that treatment can be tailored to specific needs. At present, there is no such method that can enable us to identify those alcoholics who can safely return to drinking and those who cannot. The issue of abstinence versus controlled drinking is hardly resolved; unfortunately, the current controversy could prevent the development of potentially effective controlled drinking treatments. What is needed at this point is effective and thorough evaluation of a variety of alcohol treatment programs used with a variety of problem drinkers and alcoholics. Only in this way can treatment of alcohol addiction and evaluation of behavioral change program be advanced. In the meantime, I am proposing the following research design as an extension and improvement over the existing research methods on the comparative suitability of abstinence versus controlled drinking.

PROPOSED RESEARCH METHOD

Selection Criteria and Assignment to Treatment

Sixty subjects will be selected to participate in a treatment program described as being suitable for problem drinkers where consumption of alcohol has recently begun to interfere with their family life, health, employment or other important areas of life. The screening criteria used will specify that a person accepted to treatment programs does not have: 1) Evidence of serious physical complications like, liver disease, cardiac anomalies, or other health problems that might be seriously exacerbated by moderate alcohol use; 2) Psychiatric disorders (e.g., psychosis that might interfere with treatment programs); 3) Pathological intoxication such that the subject consistently or frequently exhibits uncontrolled or bizarre behavior following even moderate alcohol use; 4) Evidence of recent physiological addiction to alcohol and signs of withdrawal; or 5) Medical contraindications as indicated by a physician, to the use of moderate alcohol (use of medication, prescribed or otherwise, that is considered dangerous when taken in combination with alcohol).

Potential candidates have to agree to undergo four weeks of in-patient treatment, participate in out-patient booster sessions every other week for a year (after discharge from in-patient treatment), and have at least one collateral to cooperate in the

follow-up and evaluation of treatment. These selection criteria are consistent with the literature on controlled drinking (Foy, Nunn & Rychtarik, 1984; Vogler, Compton & Weissbach, 1975). In order to insure the contingencies for the treatment, a "commitment" fee will be collected from all candidates, which would be earned by completing the treatment and participation in booster sessions. Agreement to arrange support of significant others (who will provide reinforcement for appropriate drinking behavior of abstinence or controlled drinking) will be one of the requirements to be accepted into the treatment program.

Subjects will be recruited from an advertisement in the local newspaper in which no mention will be made of treatment goals. Referrals will also be accepted from physicians, court orders and other sources. Persons of either sex will be accepted. Each subject will be asked about their belief in the concept of controlled drinking and abstinence. However, subjects will be assigned on a random basis to a goal of controlled drinking or abstinence using behavioral techniques and to a traditional abstinence-oriented program. These three groups will be designated as controlled drinking experiment (CD-E), non-drinking experiment (ND-E), and non-drinking control (ND-C). This classification is similar to the experimental design of Sobell and Sobell (1973a, 1973b). The major difference of proposed research design from the Sobells' design is that controlled drinker control (CD-C) has not been included as this was similar in all respects to non-drinker

control (ND-C) in the Sobells' study. Another difference is that the proposed study focuses on the comparison between two goals of controlled drinking and non-drinking (abstinence) using the same set of behavioral techniques. The Sobells compared these goals using behavioral techniques for controlled drinking (CD-E) and traditional abstinence techniques for control (non-drinker control, ND-C). In this proposed study this comparison is considered from a clinical standpoint rather than from that of research. Sixty subjects will be equally divided into these three programs. Subjects will be unaware of the alternative treatment condition and will be informed of their drinking goal in the first counseling session. Clients assigned to a goal of abstinence will not be allowed during treatment to change their goal. However, due to ethical considerations clients will be permitted to shift from a goal of controlled drinking to a goal of abstinence.

Initial Assessment and Client Characteristics

Health history will be obtained on each subject. The following social and demographic data will be collected on each subject: age, sex, marital status, present living conditions (accommodation, income, etc.), years of education and work history. In order to ascertain intellectual functioning and verbal skills, the WAIS-R will be administered to all subjects.

To assess the drinking variables, a history will be obtained in terms of years of problem drinking, quantity, frequency, level of severity of drinking (moderate with or without problem, heavy with or without problem) and modal beverage (beer, wine, liquor). Also, a record will be kept in each subject's case of the circumstances under which problem drinking occurred frequently in the past, and if the subject has ever achieved success in moderating his earlier drinking or maintaining abstinence, and what the contributing factors were at that time. These factors will be taken into account in tailoring the program for particular individual counseling. Additionally, the Michigan Alcoholism Screening Test (MAST) will be given to each subject.

Experimental Design

The treatment method applied to the controlled drinking experiment (CD-E) and non-drinking experiment (ND-E) will be identical except in the former case subjects who will learn controlled drinking skills to attenuate their drinking in addition to other behavioral techniques aimed at abstinence.² The definition of controlled drinking in this experiment³ is defined as: 1) average daily consumption of 3 ounces or less of 80 proof spirits (two drinks) or its equivalent (1.2 ounces of absolute alcohol); 2) typical quantities of drinking less than 6 ounces of 80 proof spirits or its equivalent (four drinks); 3) no tremors reported; and 4) no serious symptoms (blackouts, morning drinking, missing meals, missing work or being drunk).

²Abstinence is itself a form of control. Some current drinking programs require the clients to first abstain from all use of alcohol for a period of time (Marlatt, 1983). Functioning well constitute daily drinking disposition of abstinent plus controlled drinking (Sobell & Sobell, 1973b). Therefore, in the case of controlled drinking goal, emphasis will be not only on controlled drinking skills to control the drinking, but also on how to abstain through behavioral techniques aimed at abstinence.

³The definition stated in this experiment is very conservative compared to the Rand Report (1976), the Sobells' study (1973b) and others. The present definition is more in line with norms of average social drinkers (Fifth Special Report to the U. S. Congress, 1983).

The guidelines for managing the drinking component include: a) using a mix to alcohol ratio of 3 to 1 for all distilled spirits, b) never drinking straight distilled spirits, c) taking smaller sips, d) increasing the length of time between sips, e) spending no more than two hours in a drinking setting, and f) drink no more than two standard drinks in a drinking session.

An analysis will be done regarding appropriate versus inappropriate choice regarding time of the day, frequency of drunk days, length of drinking once begun, beverage and mix selection, rate of consumption and blood alcohol level, selection of drinking companion, relative priority placed on drinking versus other social, recreational activities in life, etc. The data will be collected through self-monitoring, behavior observations by others and through spot checking of blood alcohol concentration through Breathalyzer.

The behavioral techniques used for controlled drinking experiments and non-drinking experiments will be operant analysis, alcohol education, group therapy, stimulus control, self-management (role playing, drink refusal, social skills, vocational assistance, relaxation training) and self-monitoring.

For the traditional abstinence program ND-C, the subjects will receive 28 days in-patient treatment in a local traditional alcoholism treatment center. The standard procedure used in these treatment programs constitute initial intake, individual therapy, group therapy, peer story narration and feedback from peers in the group, psychodrama (in which clients act out or dramatize past, present, or anticipated life situation roles in an attempt to gain deeper understanding and achieve catharsis), community management (in which subjects discuss problem with house rules and with others including management staff) and discussion of 12 steps and traditions of Alcoholics Anonymous (AA). Heavy emphasis

is on dealing with denial confrontation aspects of the drinking and how to stay sober. Jellinek's disease concept of alcoholism and physical effects of alcohol will be frequently discussed.

Aftercare

Booster sessions are to be arranged on an outpatient basis once a week for all groups for two hours to discuss the old or new problems of the "graduated subjects" from treatment, for retraining the skills and to monitor the progress of the treatment program. Significant others will be encouraged to join the treated subjects to become aware of the treatment program and to participate in monitoring the progress of the treated subjects.

Follow-up Data

Independent follow-up data will be obtained at six-month intervals (up to four years) for drinking variables, relationship with spouse/family, health and work history. These data will be obtained through self reports utilizing the scoring system of Ewing and Rouse (1976, Table 1). These data will be corroborated by data obtained from significant others and reliability coefficients will be calculated. These data will be occasionally checked through blood alcohol concentration determination in order to verify the self reports. Subjects will be asked which techniques, or methods helped them, and which post-treatment variables had been of help/hinderance in achieving the desired goal. Finally, factor analyses will be done to obtain a

correlation of pre-treatment and post-treatment variables and to analyze which treatment, technique and other intervening variable helped what type of individual and under what circumstances. The two sets of data (one for CD-E and other for ND-E) based on self reports of drinking variables, health, work history and employment will be compared to decide whether controlled drinking or abstinence has been the more appropriate treatment goal. Since both treatment goals had the same kind of techniques and intervention employed, subjects were randomized, independent follow-up was employed, self reports corroborated with observation by others, and independent blood alcohol concentration (for drinking variable), this method will yield a fair comparison between controlled drinking and abstinence.

From a clinical standpoint, the results of the controlled drinking experiment (CD-E) can be compared with a non-drinking control (ND-C). In the former case the controlled drinking goal is achieved through experimental behavioral techniques. In the later case abstinence goal is achieved through traditional alcoholism treatment. A group of problem drinkers are randomized into one program offering behavioral oriented controlled drinking, with the other program offering traditional abstinence-oriented services already existing in the community. The results of these two programs can be compared in terms of outcome in drinking and other important life measures.

A third comparison also can be made between two non-drinking approaches, one behavioral-oriented and the other traditional-abstinence approach already existing in local communities. This comparative study does not come within the scope of the present review, but from clinical standpoint one could modify the existing program if better results are obtained from the other.

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